

Chemical Week

April 23, 1955

Price 50 cents



It's not news when a book is banned in Boston—unless, as now, it's on a chemical p. 15

► Chicago: at nation's crossroads, it's booming both in production and distribution p. 20

Antipolio vaccine points the research path to further conquests of disease p. 42

Phenol from cumene poses a challenging problem: what to do with the acetone? p. 83

Standards on pumps are now being readied, will chart the course for further

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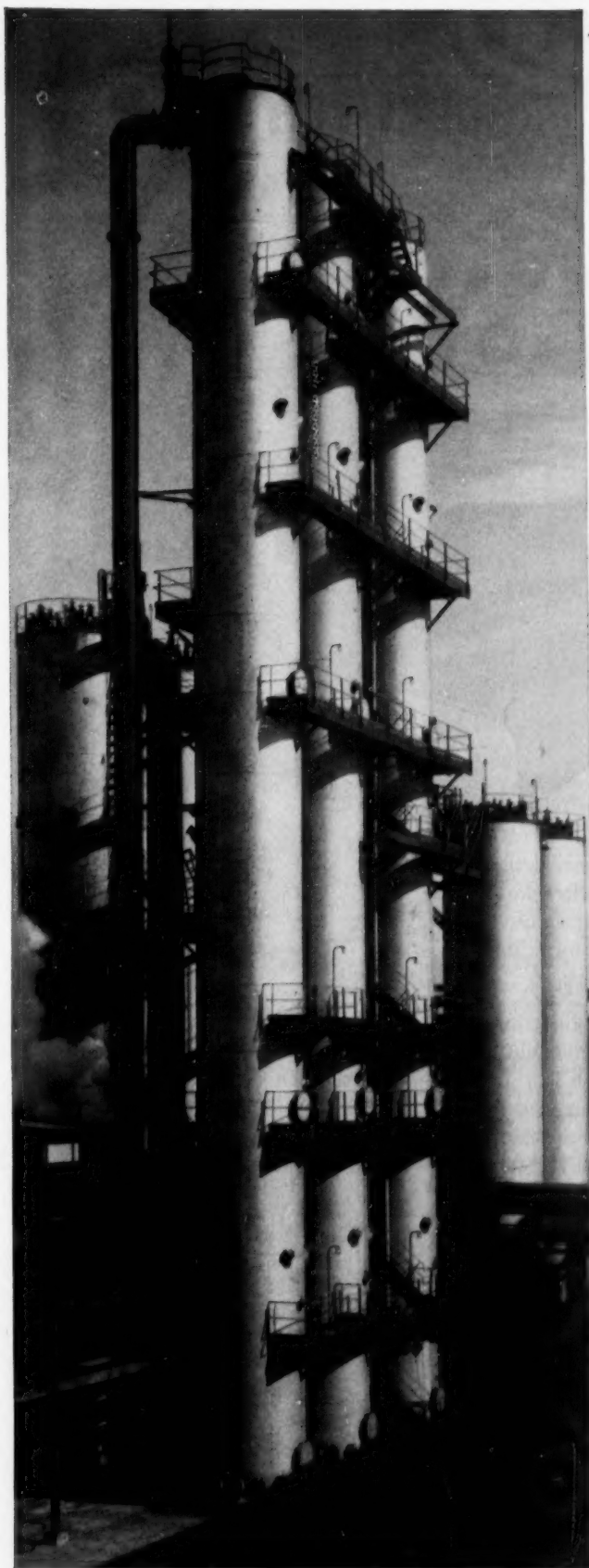
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Chemical Week

Volume 76

APRIL 23, 1955

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with an adhesives problem?

(that you don't even
know you have?)

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Evans Research

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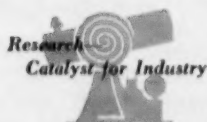
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Do you know that new specialized adhesives can make production shortcuts possible?

Do you know that the advice of specialists in solving adhesives problems is important?

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EVANS RESEARCH
and Development Corporation, Dept. W 2
250 East 43rd St. New York 17, N. Y.

OPINION

We Stank

TO THE EDITOR: Normally my odor consciousness is no better than average, but immediately upon opening your April 9 issue I was struck by a noticeably strong odor from the paper. It is entirely possible that this has been present normally, but this was the first time I can recall anything similar. By any chance was there a change in the paper for this issue?

I do not mean to infer that your magazine stinks—the above comments are of a physical rather than editorial nature . . .

ROBERT M. SIMPSON
Columbia-Southern Chemical Corp.
Pittsburgh, Pa.

Our printer encountered a batch of stinking (literally) ink, is now busy experimenting with deodorizers.—Ed.

Ammonium Meta

TO THE EDITOR: We should like to call attention to your statement in the March 26 issue (p. 68), which refers to the ammonium metaphosphate fertilizer being produced in one of TVA's pilot-plant studies. The chemical composition of the ammonium metaphosphate was reported as 17.3% N and 18.5% P. The material has an analysis of about 17% N and 32% P.

Since the value of the phosphorus in fertilizers is reported in terms of P_2O_5 equivalent, the analysis of this fertilizer material should be reported as approximately 17% N and 73% P_2O_5 . . .

T. P. HIGNETT
Chief, Development Branch
Division of Chemical Development
Tennessee Valley Authority
Wilson Dam, Ala.

Tussle with TVA

TO THE EDITOR: In your April 2 (p. 70) issue you said:

"Word in the trade is that the two current private producers of diammonium phosphate may back TVA's venture, actually join in and hope to profit by its educational and demonstration program."

The two private producers they mention are Bennett Chemical Co., of which I am president, and Colorado Fuel & Iron Corp. The Colorado Fuel

& Iron Corp.'s plant for manufacturing diammonium phosphate is in Pueblo, Colo. and our plant is in Denver, Colo. Both of these companies are doing everything they possibly can to try to keep TVA from starting the production of diammonium phosphate. In the case of Bennett Chemical, we will be driven out of business if TVA starts to produce this product at the price they mention. This price is under our costs and we simply cannot compete with a government-financed business such as TVA, when they price their product on such an unrealistic basis . . .

We just want to be real sure that you know that the two current private producers are fighting TVA on this venture and not joining in with them. There is no reason for TVA to manufacture diammonium phosphate and we do not figure that we will profit at all by any so-called "educational and demonstration program." It looks to me as though this news article of yours has been inspired by TVA, to try to cause senators, congressmen and scores of fertilizer manufacturers . . . to quit their vigorous protesting . . .

TVA is receiving wires such as the following, which was sent by Sen. Henry Dworshak of Idaho to General Vogel, chairman of the board of TVA:

"Vigorously protest and object to production by TVA of diammonium phosphate as announced your statement March 23. Convinced TVA should not under any circumstances further interfere with private enterprise, especially where the project is so patently unwarranted. Your reply would be appreciated."

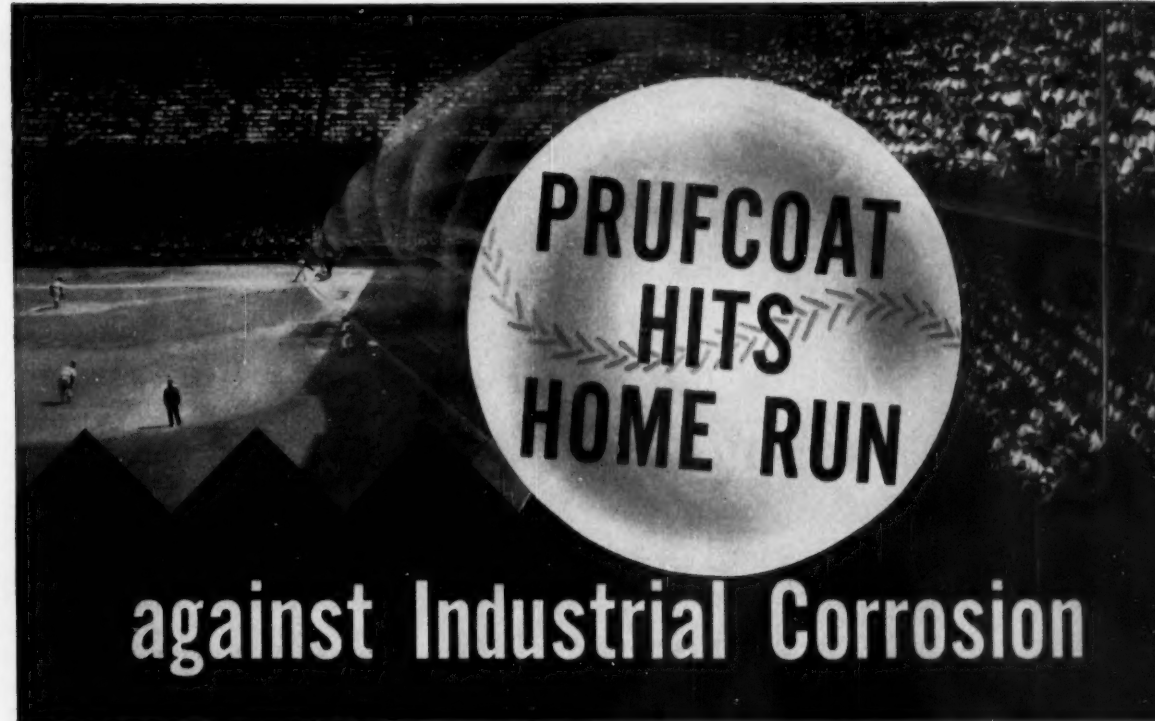
We heartily endorse this sort of protests . . .

R. E. BENNETT
President
Farm Fertilizers, Inc.
Omaha, Neb.

CW merely reported, did not indulge in any endorsement of the TVA pro-

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to:
W. A. Jordan, Chemical Week, 330
W. 42nd St., New York 36, N. Y.



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3 PRUFCOAT New Fast-Dry Primer P-50 Lets You Over-Coat In Just Two Hours!

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OPINION

ject, nor did we identify the several companies involved. For further developments on the diammonium phosphate project see our April 16 issue, p. 97.—Ed.

Don't Jeopardize Goodwill

TO THE EDITOR: . . . I think that I remember an editorial you published several months ago in which you pointed out that people are objecting to the high prices of prescriptions and may blame the pharmaceutical industry for these prices . . . You might have thought that was a serious situation for the drug people to face but I believe that it is nothing like the one that now confronts them with respect to the Salk polio vaccine . . .

Here is a product that has been developed with funds supplied by all kinds of people—they contributed their dimes and dollars for years in the hope that this crippling disease would be stopped. Now a vaccine has been developed . . . and the drug companies are starting to make and sell it . . . And, judging from the stock market, a lot of people must think that the drug companies are going to make money on the deal . . .

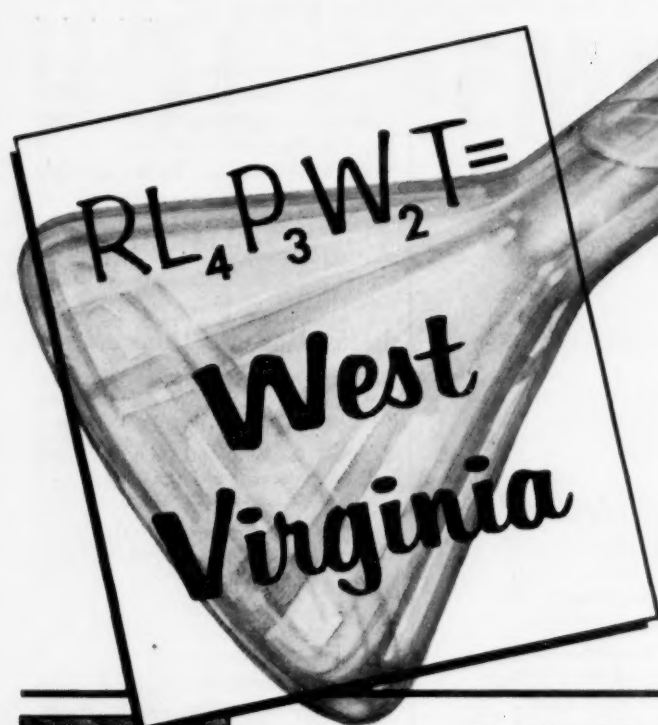
That is dangerous. I don't believe that the question really is whether the drug companies will make large profits or not—indeed, I doubt that most of them will attempt to; but if the public believes that they will, the drug companies will suffer and the future of the whole industry may be impaired, may even mean that regulations will be imposed . . .

It is my belief that the drug companies should do all that is possible to tell the public what they are doing, and that also they would be a lot safer if they could arrange to have the vaccine shipped to a government bureau for distribution . . .

No drug company is in an enviable position when it has to "sell" its vaccine; no drug company is going to be free of criticism no matter how fairly it tries to allocate supplies.

Both the drug companies—and, incidentally, the medical profession—are in great danger of incurring a lot of trouble; they may even invite socialization proponents to arise and start propagandizing unless they are very careful . . .

It is my opinion that drugmakers would be very well advised to think a good deal about plans to make and



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is for the power every industry needs and in West Virginia your plant can have power in abundance, whether you wish to use *coal, electricity* or *natural gas*. West Virginia's utilities are cooperative and have undergone great development in recent years. Here you find power at its source.



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Industries whose plans include expansion or dispersion, should inquire about the State of Progress . . . West Virginia. Write or phone: Executive Director, West Virginia Industrial and Publicity Commission, State Capitol Building, Room 200, Charleston 5, West Virginia.



*"Eheu, fugaces
labuntur anni!"*

Today, at Dicalite, we would translate that, very broadly indeed, "Good Heavens! Twenty-five years gone by so soon!" For, as we look back to 1930 and our beginnings, we feel a double sense of wonder... first, that a quarter-century has sped so fast, and then, that we (and diatomite) have come so far in so short a time.

As you know, Dicalite is both our Division name and the family name of a whole host of materials processed from diatomite. This unique material, once regarded as almost an oddity, used occasionally as 'chalk-rock' building stone or in fire-lighters, today serves important uses in more than 200 industries.

This great expansion is due, in no small part, to the warm cooperation of the industries which we serve. Their laboratories have worked with ours, their product engineers and ours have together pioneered new developments, new uses, for this versatile earth.

Hence, we would like to make this, our 25th milestone, an expression of thanks to the many industries throughout the world whose ready acceptance and continued use of Dicalite have made possible our growth. Their support has enabled us to advance from 1930's one deposit, one plant, to our present four deposits and four processing plants. Our obligation is cheerfully assumed and Dicalite will contribute even more greatly to industry's progress during our next quarter-century.

1930 • 1955
25
YEARS

Dependable
G.L.C.
Dicalite
DIATOMACEOUS MATERIALS

P.S.

The cryptic headline is from the Roman poet Horace (Odes II, xiv, 1). Its literal translation is "Alas, the fleeting years glide by," but we cannot echo the poet's expression of regret.

DICALITE DIVISION, GREAT LAKES CARBON CORPORATION,
612 SOUTH FLOWER ST., LOS ANGELES 17, CALIFORNIA

OPINION

distribute the vaccine that would be as free of "commercialization" as possible and also to make it very clear in the mind of the public that they are not eager to make profits from a publicly financed discovery . . .

OTTO L. HOUSER
Phoenix, Ariz.

DATES AHEAD . . .

Scientific Apparatus Makers Assn., annual meeting, The Greenbrier, White Sulphur Springs, W.Va., April 24-28.

Chlorine Institute, spring meeting and golf tournament, Seaview Country Club, Absecon, N.J., April 26-27.

American Zine Institute, annual meeting, Drake Hotel, Chicago, April 28-29.

National Metal Trades Assn., Western Plant Management Conference, French Lick Springs Hotel, French Lick, Ind., May 1-4.

American Institute of Chemical Engineers, national meeting, Shramrock Hotel, Houston, May 1-4.

Electrochemical Society, Sheraton-Gibson Hotel, Cincinnati, May 1-5.

American Pharmaceutical Assn., annual convention, Miami Beach, Fla., May 1-6.

Society of the Plastics Industry, annual meeting and conference, cruise on the Queen of Bermuda, May 7-15.

American Institute of Chemists, annual meeting, Chicago, May 11-13.

Automation Symposium, Michigan State College, East Lansing, May 12-13.

Society of Cosmetic Chemists, Biltmore Hotel, New York, May 13.

Chemical Specialties Manufacturers Assn., midyear meeting, Drake Hotel, Chicago, May 15-17.

Chemical Progress Week, May 16-21.

Chemical Market Research Assn., annual meeting, Plaza Hotel, New York, May 18-19.

Rubber Division, Chemical Institute of Canada, annual conference, Sheraton Brock Hotel, Niagara Falls, Ont., May 20.

Air Pollution Control Assn., annual meeting, Detroit, May 22-26.

Institute of Paper Chemistry, executives' conference, Appleton, Wis., May 26-27.

Chemical Institute of Canada, annual conference, Quebec City, May 30-June 1.

Armed Forces Chemical Assn., annual meeting, Cleveland Hotel, Cleveland, June 16-17.

American Society for Testing Materials, annual meeting, Chalfonte-Haddon Hall, Atlantic City, N.J., June 26-July 1.

Chemical Week • April 23, 1955

U.S.I. CHEMICAL NEWS

April 23

★

A Series for Chemists and Executives of the Solvents and Chemical Consuming Industries

★

1955

NEW POLYETHYLENE PLANT ON-STREAM

National Distillers Announces 2 Appointments

Dr. Hulse Named Director



National Distillers Products Corporation has recently announced the appointment of Dr. R. E. Hulse as a member of the company's Board of Directors. Dr. Hulse is Vice President in charge of all National's Chemical Activities. This includes the U.S.I. Division which produces and markets industrial alcohol; solvents; chemicals (including metallic sodium, sulfuric acid, anhydrous ammonia); polyethylene; and feed supplements. Dr. Hulse also serves as Vice President and Director of National Petro-Chemicals Corporation, the 60% owned subsidiary managed by National Distillers.

Vincent McCarthy to Direct Polyethylene Sales

In another recent announcement, Mr. Vincent McCarthy was appointed sales manager of "PETROTHENE" Polyethylene Resins for U. S. Industrial Chemicals Co., Division of National Distillers Products Corporation. Mr. McCarthy formerly was sales manager of extruded polyethylene products for Gering Products, Inc. His background embraces the entire thermoplastic raw materials field. Under direction of L. A. Keane, U.S.I. sales Vice President, Mr. McCarthy will supervise all polyethylene sales activities of U.S.I. Division Offices covering all major marketing areas.



Integrated plant yields resin with consistent, controlled properties; Product to be marketed by U.S.I.'s nationwide sales organization.



Artist's drawing of National Petro-Chemical's new polyethylene plant, Tuscola, Ill.

SPECIAL NOTICE

Government Permits No Longer Required for Ethyl Acetate

As of January 1, 1955, all restrictions on the use of ethyl acetate have been removed, and denaturation of ethyl acetate no longer will be required. This is in accordance with U. S. Treasury Decision 6117, published in the Federal Register, Volume 19, Number 253, Part 2, Section 1.

This removal of regulations places ethyl acetate in the same category with any other ordinary chemical product, such as acetone, and manufacturers wanting to use or ship ethyl acetate of any grade no longer need obtain government permits and approval to do so.

Two grades of medium flow polyethylene resins are now being produced at a new plant in Tuscola, Illinois, it was announced by National Petro-Chemicals Corporation, and its two parent companies, National Distillers Products Corporation and Panhandle Eastern Pipeline Company. It is estimated that production during the first year of operation will be in excess of 26 million pounds. This plant is the most recent addition to the huge petrochemical facilities owned and operated by Petro at the same plant site. The plant is based on an I.C.I. process, modified by Petro to meet specific requirements of the plastics industry and it produces a high molecular weight polyethylene resin. Because of the integrated nature of the operation, a high-quality polyethylene resin is produced with consistent, controlled physical properties.

To Be Marketed by U.S.I.

Petro's polyethylene resins, under the trademark name "PETROTHENE", are being marketed through the nationwide sales organization of U. S. Industrial Chemicals Co., a Division of National Distillers Products Corporation. "PETROTHENE" resins are available in grades suitable for extrusion, compression, and injection molding, for use in the manufacture of films, bottles, pipe, etc. U.S.I. has sales offices in most major cities and warehousing facilities are being established in East Coast, Midwest and West Coast plastics market areas to assure prompt delivery to customers. "PETROTHENE" molding powder comes in cube form and is available in all quantities from 50 pound bags to carloads.

Made from natural gas

As shown in the flow diagram on the next page, the starting point in the production of "PETROTHENE" resins is natural gas pumped from two converging pipelines by Panhandle Eastern's Tuscola compressor station. Hydrocarbon extraction is the first step. Hydrocarbons are then liquefied under pressure and fractionated into ethane and by-product propane, butane and natural gasoline. The ethane is converted by "cracking" into

MORE



January 21 marked the dedication of U.S.I.'s new ammonia plant at Tuscola, Ill. A model tank car was presented to Central Illinois Fertilizer Co., to represent delivery by U.S.I. of the first car of anhydrous ammonia for direct application to the soil. Attending the dedication and shown above, left to right, are: John E.

Bierwirth, President National Distillers Products Corp.; Dr. R. E. Hulse, National Distillers Vice President and General Manager of National's U.S.I. Division; Dr. K. D. Jacob, U.S.D.A.; D. J. Patterson, U.S.I. Tuscola Plant Manager; C. R. Ware, President, Central Illinois Fertilizer Co.; Fred Jones, Mayor of Tuscola, Ill.

April 23

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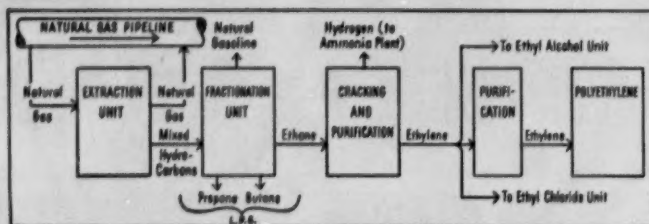
U.S.I. CHEMICAL NEWS

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1955

CONTINUED

New Polyethylene Plant On-Stream



"Petrothene" polyethylene resins are made from natural gas as shown in this flow diagram.

ethylene and byproduct hydrogen. The ethylene is purified by low temperature distillation and feeds into the polyethylene unit for conversion into "PETROTHENE" resins.

Capacity can be expanded

According to Dr. Robert E. Hulse, Vice President of Petro, the new unit can be greatly expanded above its current production rate of 26 million pounds of polyethylene. The unit was designed for this future possibility, to insure a steady source of supply to customers in an expanding market.

In addition, the size of the laboratory facilities at Tuscola have been doubled to assist "PETROTHENE" customers with new developments and processing problems, as well as to provide the processing quality control necessary for a high-grade product.

Additional information is contained in the new "PETROTHENE" booklet. Copies sent upon request to Editor, U.S.I. Chemical News.

Methionine Alleviates High Altitude Anoxia

During recent studies, medical researchers found that human beings showed greater resistance to high altitude anoxia (oxygen deficiency) after injections of cysteine—one of the sulfur containing amino acids which can be derived from methionine in the body. Because of its expense and other considerations, cysteine is not used in practical work. However, biologically it can be supplied by administration of its precursor, methionine.

These research findings tend to confirm and add support to the view that cysteine and its precursor, methionine, play a definite and important role in preventing or alleviating the adverse effects of many different stress factors and extremes in environment.

Organosodium Compounds Opening New Frontiers

Organosodium compounds prepared from sodium dispersions are opening new, economical routes to the synthesis of phenylacetic acid, dimethyl phenylmalonate, benzophenone, and many others, including organotin, phosphorus and silicon products.

The organosodium compounds are prepared by reacting organic compounds with dispersed sodium. Phenyl sodium, for instance, is made by metering chlorobenzene into the sodium dispersion. The minute particles permit the reaction to start immediately and to produce high yields. Aliphatic, aromatic and heterocyclic derivatives can be

formed in this manner.

Sodium dispersions are suspensions of microscopic sodium particles (10-20 microns) in various hydrocarbons, such as toluene, xylene or kerosene. High speed agitation is used to disperse the molten sodium in the liquid hydrocarbon. These organosodium compounds can be made in any size vessel from a liter flask to a 1000 gallon reactor.

For detailed information, write for U.S.I.'s Sodium Dispersion Booklet. Free copies on request to Editor, U.S.I. Chemical News.

TECHNICAL DEVELOPMENTS

Information about manufacturers of these items may be obtained by writing U.S.I.

Many and varied uses are seen for a wide spectrum chemical (ethyl carbamate) with applications ranging from medicine to industry. Reacts with organic or inorganic compounds to form intermediate or end products of commercial importance. (No. 1080)

Pressure sensitive adhesive in a ball point dispenser for plant, office, school and home use is now on the market. It is said to bond paper to paper easily, yet make it possible to peel glued sheets apart whenever desired. (No. 1081)

Irradiated polyethylene samples for testing can now be bought. Maker reportedly will fill specifications for test lengths of tubes, extruded shapes, or rods. (No. 1082)

Seeds get off to fast, healthy starts when planted in hollow-center cubes of plant food material. Ideal for flower, vegetable seeds, these new cubes reportedly make planting, transplanting easier and more successful. (No. 1083)

Use of Vaccenic acid, trans-11-oleic acid, with its higher melting point and resistance to rancidity, reportedly will produce new aldehydes, acids, and other compounds of value in food, cosmetic, and industrial applications. (No. 1084)

New flexible labels for polyethylene squeeze bottles are said to give with bottle, yet return to its original shape when pressure is released. Applicable with conventional methods and equipment, the new labels are claimed to make possible real color and design in squeeze-bottle packaging. (No. 1085)

A "tamed" iodine germicide, that won't stain, sting or poison, is described as effective even in highly dilute solution against a wide range of micro-organisms, including polio virus and influenza virus. (No. 1086)

A powerful, completely nonstaining rubber antioxidant, of special interest for white or light-colored goods, shows retention of tensile strength after accelerated aging, the manufacturers state. (No. 1087)

To impart fire-retardant properties to latex-base paints, a new borate compound has been developed. (No. 1088)

New stabilizer and antiskinning agent for paint has high surface activity reported to keep heavy pigments in suspension. No milling with pigment paste required, just add to finished paint before viscosity adjustment is made. (No. 1089)

PRODUCTS OF U.S.I.

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Pure—190 proof U. S. P.,
Absolute—200 Proof
Solox®—proprietary solvent—regular and anhydrous

ETHERS

Ethyl Ether, U. S. P.
Ethyl Ether, Absolute—A.C.S.

ACETONE—A.C.S.

ANSOLS

Ansol® M
Ansol® PR

ACETIC ESTERS

Butyl Acetate
Ethyl Acetate—all grades
Normal-Propyl Acetate

OXALIC ESTERS

Diethyl Oxalate

OTHER ESTERS

Diatol®
Diethyl Carbonate

INTERMEDIATES

Acetoacetanilide
Acetoacet-ortho-chloroanilide
Acetoacet-ortho-toluidide
Acetoacet-para-chloroanilide
Ethyl Acetoacetate
Ethyl Benzoylacetate
Ethyl Sodium Oxalacetate

FEED PRODUCTS

Calcium Pantothenate (Feed Grade)
Choline Chloride Products
Curbay B-G® 80
DL-Methionine (Feed Grade)
Niacin, U.S.P.
Riboflavin Concentrates
Special Liquid Curbay®
U.S.I. Vitamin B₁₂ and
Antibiotic Feed Supplements
Vacatone® 40
Vitamin A, D₂, and K₂ Products

PLASTICS

Petrothene® Polyethylene Resins

OTHER PRODUCTS

Anhydrous Ammonia
Caustic Soda
Ethylene
Liquid Chlorine
Metallic Sodium
DL-Methionine (Pharm.)
N-Acetyl DL-Methionine
Nitrogen Solutions
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Sulfuric Acid
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Division of National Distillers Products Corporation

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BRANCHES IN ALL PRINCIPAL CITIES

NEWSLETTER

Though labor started rumbling in earnest this week, still in the forefront of company interest were the perennial twin teasers—tariffs and air pollution—and what the federal government will do about them.

On the tariff question, U.S. chemical firms, worried about deep tariff cuts on their products in the course of current Japanese tariff negotiations, were brightened by a ray of hope. The Administration is now considering a concession to textile interests in the struggle in the Senate over H.R. 1 (the Trade Agreements bill)—and chemical companies could well profit indirectly. Strictly a political move (designed to win back Southern Democratic support for Eisenhower's foreign trade program), the proposal would bar Japan's getting a double tariff cut—one under existing tariff law, and a later one under authority contained in H.R. 1. That means that a 15% tariff cut now would rule out a later cut—if it's made in the concessions being negotiated in Geneva.

Since a long list of coal-tar intermediates and other organic chemicals are on the line in Geneva bargaining, the importance of such a ruling is obvious.

The Administration may also go along with a couple of other amendments before the tariff fight ends in the Senate. One possible move is to drop insistence on the provision permitting the President to cut tariffs up to 50% on products being imported in only negligible amounts in the U.S. This has continually been a target of protectionist fire, and isn't considered of much practical importance by Administration trade experts. Another amendment Eisenhower might accept: a broadening of the Administrative power to use tariffs and quotas to give special protection to defense industries threatened by import competition.

Eisenhower advisors insist, however, that this is the limit to which the Administration will go in making concessions to high-tariff opposition. And it's increasingly confident that it's winning the tariff fight on the Hill. This optimism is based on two recent developments: Sen. Walter George, of Georgia, and Sen. Harry Byrd, of Virginia, have both now indicated that they will fight crippling amendments to H.R. 1.

Probable timetable for action: by May 1, the Senate Finance Committee will report H.R. 1 to the floor; by May 15, H.R. 1 will be passed by the Senate, and the House of Representatives will have completed action on the Geneva agreement; by June 15 there will be a final showdown in the Senate on Geneva.

Some sort of action on air pollution looks imminent, too—set off by MCA President William C. Foster's proposal. Speaking before the Third National Air Pollution Symposium at Pasadena, Foster relayed this suggestion: he would form a permanent National Advisory Committee on Air Pollution Control—made up of industry, federal and local government officials. The idea originated with MCA's Air Pollution Abatement Committee—a group “whose job it is to reduce a belching black cloud to an invisible wisp.”

It's sure that the Foster proposal will get discussion later this week and next. Hearings are now slated for April 22 and the week of April 25 on extension of the 1948 Water Pollution Control Act, and on a measure to amend that act to authorize further federal air pollution research (*CW*, April 16, p. 17).

A hearing date has also been selected for the Food Additive bills—June 1-10. There's a good chance now that in addition to the Delaney and O'Hara measures, one additional bill will be up for consideration.

Its sponsor—Rep. A. L. Miller (R., Neb.)—is currently drafting a measure that combines the prior-approval approach with prior notification—the method of handling the food additive problem long favored by the chemical industry.

Meanwhile, the labor picture is darkening fast. When the current heavy debate in Congress over the federal minimum wage law winds up, it's almost sure legislators will vote a higher wage floor for 24 million U.S. workers. But for chemical producers, particularly in the South, it is of prime moment whether the wage floor is laid at 90¢ (the Administration's figure) or \$1. Currently, minimum wage in basic chemicals in Southern states is 20¢ higher than the present 75¢ minimum wage. This puts the pay level right in the middle of the fight over the two figures. A Congressional vote for 90¢ wouldn't affect payrolls, but a \$1/hour minimum would mean an automatic raise. Odds now: the pendulum could swing in either direction, will probably hang on how much bargaining power union labor can wield.

Discussions are proceeding between bankers for Blockson Chemical Co. and officials of Olin Mathieson Chemical Corp. over merger possibilities. Blockson, a leading producer of phosphates for synthetic detergents, had \$30 million sales last year; Olin Mathieson makes heavy chemical fertilizers, ran up over-all sales of over \$450 million.

Synthesis of glycerine without chlorine, a new process developed by Shell Chemical, will be embodied in a three-plant project at Norco, La. Shell will start immediately on a 30-million-lbs./year hydrogen peroxide plant; a second plant, to be built later, will produce acrolein; a third plant will use the two intermediates to make glycerine. All three units will employ new, Shell-developed processes. Much of the hydrogen peroxide and acrolein production will be captive, of course, but Shell expects to sell "substantial quantities" of both.

Shell tried to push acrolein before (*CI, Sept. '49, p. 340*) but could find few that were willing to use the tricky-to-handle chemical. And a prior glycerine-without-chlorine process—involving formaldehyde, carbon monoxide and hydrogen—was patented by Du Pont (*CI, Newsletter, Jan. '49*) but never commercialized.

First break as to where Canada's initial atomic power station may be located came this week. Now listed as "far and away" the most likely spot by government officials: Des Joachims, about 145 miles northwest of Ottawa near the site of the Ontario Hydro-Electric Power Commission's biggest hydroelectric installation on the Ottawa River.

Construction of the \$13-15-million plant at Des Joachims would place it within easy reach of the Chalk River project—Canada's atomic energy plant.

The Weather Bureau—Invariably unpredictable at this time of year—has disappointed National Chemical Co., the firm looking for a Midwest dust storm (*CW, Newsletter, April 16*). The bureau reports it can't see its way clear to forecast a good, dusty area; it looks instead as though there'll be an unseasonal amount of rain.

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BUSINESS & INDUSTRY



EDUCATOR/AUTHOR STODDARD: In cancer drug controversy, battle shapes up on . . .

Boston Book Ban: Who's Hurt?

You'd have to look far for a sharper contrast than the smooth handling of the Salk polio vaccine testing program and the stormy course that Krebiozen has had since it was introduced three years ago as a possible cancer cure.

While the Salk project has won credit and public confidence for science and the pharmaceutical industry, there's danger that the Krebiozen controversy—which erupted again last week, this time in Boston—may tend to have the opposite effect.

Battle of Books: Following the recent publication of pro-Krebiozen book "Krebiozen—Key to Cancer" (CW, Feb. 12, p. 32), George Stoddard—whose contemptuous attitude toward Krebiozen was a factor in his ouster as president of the University of Illinois—has written an anti-Krebiozen book to be called "The Great Cancer Mystery."

Stoddard's book was scheduled to be published by a Boston printing house next month; but all activity on the book has been suspended because of a temporary injunction issued by Judge Joseph Hurley in superior court at Boston. This order was issued tentatively in response to an application by pro-Krebiozen partisans, who allege that the book contains inaccuracies.

Stoddard—now heading a university study project at New York University under a Carnegie Foundation grant—denies that his book is inaccurate, charges that the pro-Krebiozen people are afraid to have his side of the vendetta published. He says that if Massachusetts courts rule against him, he'll take the book elsewhere.

No Letup Seen: From all appearances, neither side is ready to call quits to the hassle, and both sides still insist they're upholding truth and the

public good. The petitioners in the Boston court case—Dr. Andrew Ivy, a vice-president of the University of Illinois; Steven Durovic, refugee Yugoslavian physician who says he discovered Krebiozen in serum research in Argentina; and his brother, Marko Durovic—contend that they'd be damaged by publication of Stoddard's book. They indicate that they have found misstatements in page proofs from the book. On the other hand, Stoddard can argue that their lawsuit and allegations of untruthfulness are damaging to his reputation.

Krebiozen has been called "worthless" by the American Medical Assn., and Stoddard questions whether there actually is such a substance in the ampules that Durovic has in storage in Illinois. Ivy reports that some U.S. physicians are using the ampules in treating advanced cases of cancer.

Picking Up Momentum

Three Japanese gunpowder firms will merge in June, carrying the merger parade one step farther toward out-and-out cancellation of MacArthur's SCAP directive designed to break up big business.

Unlike the recent re-amalgamation of three trading companies formerly owned by Mitsui Chemical (CW, April 9, p. 32), however, there appears to be a real and legitimate reason for the gunpowder firms' proposed merger. The problem: business difficulties have cropped up recently as a result of declining U.S. procurement orders; all three companies are on the verge of bankruptcy.

Firms involved: Kanto Heikiyo Kayaku (capitalized at \$550,000), Chuo Kako Heiki (capitalized at \$227,000), and Kansai Heikiyo Kayaku (also capitalized at \$227,000).

Applications are already on file with the Ministry of International Trade and Industry and the Fair Trade Commission for approval of merger plans; company officials say they expect little difficulty in completing all arrangements by June 1.

Here's How Congress Is Lining Up on Antitrust

SENATE

Judiciary subcommittee on Antitrust and Monopoly Legislation:

Chairman Harley Kilgore (D., W. Va.) backed up by such antitrust-minded senators as Kefauver, O'Mahoney and Langer. Committee, with a \$200,000 budget, will make a full-scale study into all antitrust law and enforcement. General counsel and staff director: Joseph W. Burns, antitrust lawyer and former tax fraud attorney for Justice Dept.

Judiciary subcommittee on patents, trademarks and copyrights:

Chairman O'Mahoney can count on money and staff support from parent Judiciary Committee for special hearings on antitrust aspects of patents.

Select Committee on Small Business:

Under Chairman John J. Sparkman (D., Ala.), this committee will schedule hearings on specific subjects affecting small business, particularly matters under the Robinson-Patman Antiprice Discrimination Act.

Interstate and Foreign subcommittee on Antitrust:

Headed by Warren Magnuson (D., Wash.), this group has \$200,000 available for antitrust inquiries in various fields, including utilities and holding companies, radio and TV industry. Subcommittee counsel Sidney Davis was counsel for the Langer Monopoly subcommittee investigation into the Dixon-Yates contract last year.

HOUSE OF REPRESENTATIVES

Judiciary Antitrust subcommittee:

Headed by Emanuel Celler (D., N.Y.), will range far and wide over entire antitrust area, with special emphasis on mergers. Counsel Herbert V. Maletz spent five years in Dept. of Justice Antitrust Division and served as general counsel for the Office of Price Stabilization before entering private practice in Washington, D. C. Cocounsel Phillip Harkins resigned from the Antitrust Division to take the committee job; assistant counsel are William Milligan, Ohio attorney, and Thomas McGrail, who just resigned from Dept. of Justice.

Select Committee on Small Business:

Chairman is Wright Patman (D., Tex.), coauthor of Robinson-Patman Act. Committee activity will reflect his ardent support for small business, specifically Federal Trade Commission enforcement of the price discrimination law. Staff director and general counsel is Everette MacIntyre, a leading figure in the old FTC antimonopoly program who left FTC early this year. Chief economist William Summers Johnson spent 18 years in government service, ended 8 years as an FTC economist to join the staff. Other staff lawyers are George Arnold, son of trust-busting Thurman Arnold, and Irving Maness, a New York lawyer formerly with the War Claims Commission.

Hot Fight Looming: Mergers at Stake

Issue-hungry Democrats are getting set to pull out all the stops in one of the broadest antitrust inquiries ever to hit Congress. Chief target: enforcement of antitrust laws by the Republican Administration.

Indication of the prevailing sentiment started developing soon after the Democrats took control of Congress after last fall's elections. But they've been waiting for two things: the final report of the Republican-sponsored Attorney General's committee on antitrust laws, and the Federal Trade Commission's economic report on the current wave of mergers.

Republicans aren't unaware of what's in store, are moving to counter an attack. Less than a week after critical blasts from the Hill about enforcement of the 1950 antimerger law,

the Federal Trade Commission jumped the gun on a recommendation contained in its merger report and announced creation of a special merger task force to speed handling of old cases and prepare new ones.

Antitrust chief Stanley N. Barnes and FTC chairman Edward F. Howrey also are lining up their lieutenants to be ready for the heavy fire of questioning they expect to face.

Lead-off Set: Both the Senate and House Judiciary subcommittees on antitrust expect to lead off their activities with hearings on the Attorney General's committee report. But neither Senate committee chairman Kilgore nor House committee chairman Celler have scheduled them yet. Reason: with so many committees geared to tackle antitrust, a good deal

of consultation is necessary to avoid embarrassing duplication of effort.

Celler, who as coauthor of the 1950 amendment that toughened up the antimerger law, can be expected to hit hard on this subject, only completed his staff before Congress recessed for the Easter vacation.

On the Senate side, Kilgore's antitrust staff director and chief counsel Joseph W. Burns has not yet filled out his staff—therefore has not committed himself.

Rep. Wright Patman's Small Business Committee has not yet scheduled hearings on any particular antitrust subject, though one of the five subcommittees has been toying with hearings into complaints from gasoline owners that big oil companies are dictating terms to them.



CAPITAL PRESS SERVICE

FINANCE MINISTER HARRIS: A compromise on polyethylene tariff.

Conflict on Chemicals

Too substantial to be exorcised by wishful words, the differences between Canada and the U.S. over cross-boundary trade in chemical products are getting attention this week from Canada's Cabinet and Parliament.

This subject—along with other aspects of "competitive troubles of Canadian industry"—took up a bulky part of the budget message presented to Parliament last fortnight by Finance Minister Walter Harris. What he said may have sobering implications for chemical management on both sides of the border.

Freer Trade Urged: Although Harris says he must impose new customs duty levies on certain chemical products as a means of protecting Canada's chemical industry against foreign competition, he pledges that by and large Canada will work for freer world trade.

In this connection, Harris praised U.S. efforts in postwar years to restore stability, expand production and increase volume in international trade; but he deplored the protectionist sentiment that he feels has been rising in the U.S.

"It is of the utmost importance for the future of international economic cooperation," Harris warned, "that the U.S. should continue to give positive direction in leadership in reducing barriers to the free flow of world trade." Up to now, he asserted, "no

nation has played a more constructive role than the U.S." During the past 12 months, however, "while there was no basic change in U.S. policies, there was a disappointing lack of progress toward actual reductions in trade barriers."

Plastics Tariffs: Assuming that Parliament will approve the government's budget proposals as expected, Canada for the first time will charge a duty on importation of polyethylene resin. Canadian Industries (1954) Ltd.—whose \$13-million plant at Edmonton "has capacity to supply the entire Canadian requirements for polyethylenes but which has been in sharp competition with imports entering the country duty-free"—had asked that the duty be set at 20%. Canada's Tariff Board had recommended a 10% figure, but the Ministry of Finance—apparently straining toward its ideal of freer trade—is asking Parliament to okay a 7½% level.

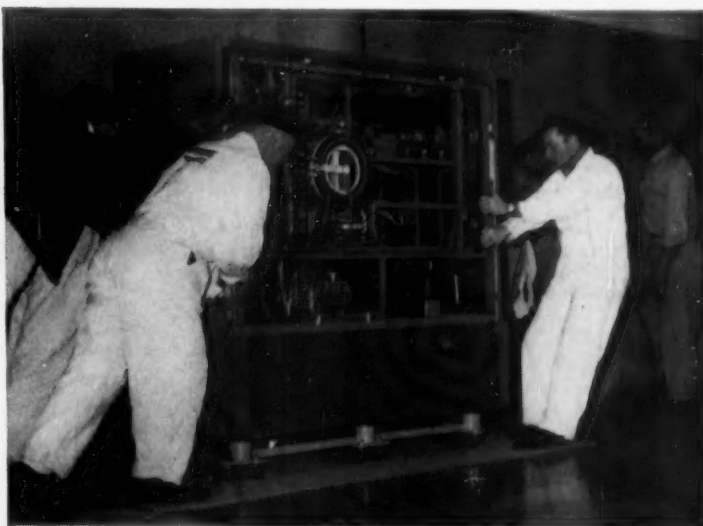
Another 7½% ad valorem duty is to be fixed on phenol aldehyde resins,

except that this product still can be admitted duty-free when it's to be used as an adhesive in making plywood. Harris says the government also is considering laying import tolls on ethylene glycol, used in making antifreeze. A 45% duty has been requested by Canadian producers and a 10% tariff has been recommended by the Tariff Board, but Harris says Canada is obligated under the General Agreement on Tariffs and Trade not to collect duty on glycol without first getting approval from other GATT member nations.

On the other hand, Harris proposes to eliminate duty on two chemical categories:

- Chemicals of a kind not produced in Canada and used in feedstuffs.
- Sodium metabisulfite for curing silage.

In appealing for tariff protection, Canadian chemical producers told the government that imports—mainly from the U.S.—are threatening their industry's existence.



Robot Brain Takes Over

UP-TO-THE-MINUTE REPORTS on production costs for each product (or group of products) are a principal part of the work being done by this electronic data processing machine introduced to the press last week in Monsanto Chemical Co. headquarters at St. Louis.

In measuring each product's return on investments, Monsanto accountants formerly relied on human "brain power." This took so long, however, that it often couldn't be done at all or the figures would be obsolete by the time they were computed.

EXPANSION

Liquid Oxygen: Linde Air Products Co., Division of Union Carbide and Carbon Corp., is installing equipment at its Seattle plant for the production of liquid oxygen. Total new capacity: 10 million cu. ft./month of gas.

Petrochemicals: Ground-breaking ceremonies were held this week for Escambia Bay Chemical Corp.'s \$30-million petrochemical plant being built near Pensacola, Fla. Actual production of ammonia and nitrogen products is expected by early next year.

Sales of the plant's production (including anhydrous ammonia, ammonium nitrate, nitric acid, and nitrogen solutions) will be handled by Ashcraft-Wilkinson Co. (Atlanta).

Mixed Fertilizers: Phillips Petroleum Co.'s wholly owned subsidiary, Curry Chemical Co., will build a 40-ton/day liquid mixed-fertilizer plant near its dry-fertilizer mixing facilities at Scottsbluff, Neb. Completion of construction is expected by June 30.

Polyester Plastics: Sherwin-Williams Co. is entering the polyester plastics field with the introduction of a full line of resins used in production of reinforced plastics. Over-all plan: to emphasize custom service—in production of resins, offering specialized formulations to meet the customer's requirements.

COMPANIES. . . .

Thiokol Chemical Corp. has reopened its Moss Point polysulfide liquid polymer plant, bringing production up to the highest level since the plant's original opening in July, 1952.

Atlas Powder Co. has consolidated all Darco-activated carbon operations under its Chemicals Division. Previously Darco had functioned as a separate division.

Using cement imported from East Germany, newly formed Anglo-Canadian Cement Distribution Co. of Vancouver stole a march on its well-entrenched British Columbia rivals when the city of Vancouver awarded the British subsidiary a \$16,000 contract for a year's supply of ready-mix con-

crete (for sidewalk and curb work).

Anglo-Canadian is a direct subsidiary of Waller Family Trust of Britain, which recently revealed plans to establish a \$100-million steel industry in British Columbia.

Two recent incorporations:

- In Shreveport, La., Shreveport Chemical Enterprises, Inc., listing capital stock of 100 shares, no par value.

- In Gulfport, Miss., Chemfax, Inc., listing capital stock of \$500,000.

Sun Oil Co. stockholders are voting this week on a management proposal to increase authorized common stock by 3 million shares. Sun now has 10

million common shares authorized, but continuation of a company stock dividend requires additional authorization.

Mutual Chemical Division, Allied Chemical & Dye Corp., has purchased an additional four acres of land adjoining its Baltimore Works. Object: more room for manufacturing, storage and shipping units.

The Longview Fibre Co. (Longview, Wash.) has exercised its option on a 77-acre site near Springfield, Ore., for a 100-ton capacity pulping pilot plant. The firm also expects to put in operation this summer a \$1-million paper carton plant under construction at Seattle.



Springing up Like Mushrooms

WHAT MAY TAKE first honors as the world's most rapidly changing stock quotation board is this one in the office of J. Wheeler & Co., Ltd.—the only stockbroker in Uranium City, Saskatchewan.

With new mining companies coming into existence and the need for new drilling equipment accentuated by the onset of spring, stock offerings by the score pour in each day. Most are modest (under \$300,000), but all are

plugged by fast-and-furious promoters—applauded in no small measure by feverish residents of the area, excited by the prospect of a strike.

From the investor's standpoint, the picture still isn't good. Too many "new firms" are merely unproved claims with a stake in the ground. But Canadian government officials are keeping a stern eye on developments, pledge the situation won't get out of hand.

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From Research to Reality

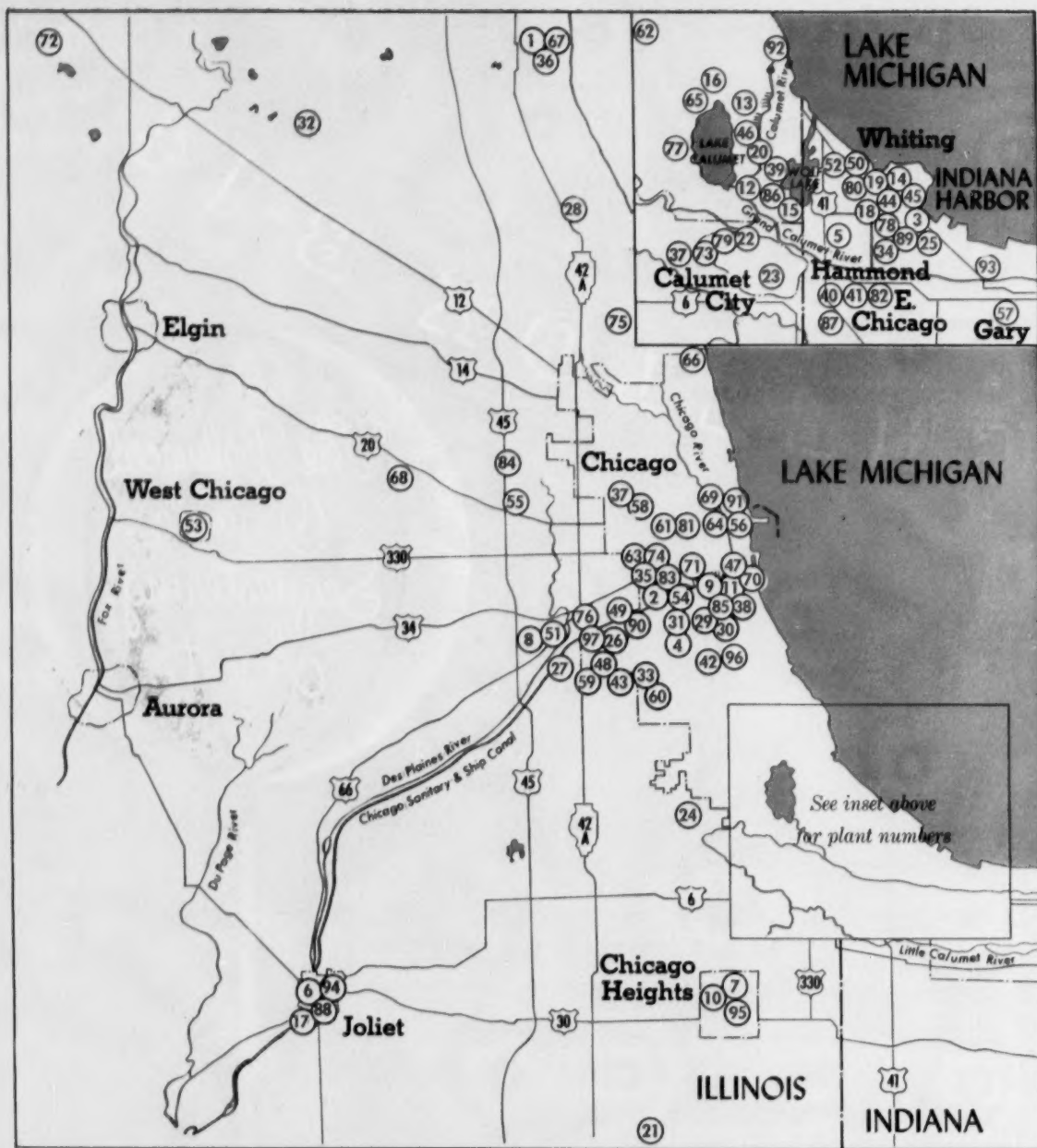
ANTARA CHEMICALS

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ANTARA





At Nation's Crossroads, Chemicals in Spurt

Rail and trucking center of the U.S., with world's busiest airport—that's basis for Chicago's claim to title, 'Crossroads of the Nation.'

Capitalizing on transportation facilities, manufacturers have put some 14,000 plants in Chicagoland—and chemical producers are scrambling to keep up with demands.

Ever since 1837, when Fort Dearborn was abandoned as an outpost for protection of settlers and the village became a city, Chicago has been a bustling community. And right now, much of the hustle-bustle is accounted

for by the area's chemical process companies, which are expanding at a record rate.

Only last week, Du Pont's Grasselli Chemicals Dept. brought into operation a plant that's one of the country's

largest single units for production of sulfuric acid. At least 18 other major chemical expansion projects have been completed within the past two years; and 11 other big jobs of this nature are under way this week. In addition,

CHICAGO'S MAJOR CHEMICAL PRODUCERS

KEY	COMPANY NAME	PRINCIPAL PRODUCTS	KEY	COMPANY NAME	PRINCIPAL PRODUCTS
1	Abbott Laboratories	Pharmaceuticals	49	Koppers Co., Inc.	Coal-tar products
2, 3	Air Reduction Sales Co.	Industrial gases	50	Lever Bros. Co.	Detergents
4	Alkydol Laboratories	Resins	51	Lewis Tar Products Co.	Coal-tar products
5	Allby Corp.	Asphalt products	52	Linde Air Products Co. (Union Carbide)	Industrial gases
6	American Cyanamid Co.	Heavy chemicals	53	Lindsay Chemical Co.	Rare earths
7	American Marietta Co.	Asphalt products	54	Liquid Carbonic Corp.	Industrial gases
8-11	Armour & Co.	Soaps, chemicals	55	London Chemical Co.	Organic specialties
12-14	Barrett Div. (Allied Chem.)	Coal-tar products	56	Maher Color & Chemical Co.	Organic specialties
15	Bee Chemical Co.	Plastic coatings	57	Marbon Corp.	Monomers
16	Bell & Gossett Co.	Fatty acids	58	Medical Chemicals Corp.	Ethyl derivatives
17	Blockson Chemical Co.	Phosphates	59, 60	National Aluminate Corp.	Water treatment chemicals
18	Calumet Nitrogen Prods. Co.	Ammonia	61	National Biochemical Co.	Biochemicals
19	Carbide and Carbon Chemicals Div. (Union Carbide)	Alcohols, Solvents	62	National Casein Sales	Casein products
20	Cargill, Inc.	Soya products	63	National Cylinder Gas Co.	Oxygen
21	Cardox Corp.	Carbon dioxide	64	New York Quinine & Chem.	Drugs
22	Catalin Corp. of America	Plastic resins	65	Ninol Laboratories	Surfactants
23	Central Chemical Div. (Wilson & Co.)	Acids	66	Organics, Inc.	Hormones
24	Chicago Copper & Chem. Co.	Barium salts	67	Pfanstiehl Chemical Co.	Rare organics
25	Cities Service Oil Co.	Petrochemicals	68	Phillips Chemical Co.	Carbon black
26	Clorox Chemical Co.	Bleaches	69	Procter & Gamble Mfg. Co.	Detergents
27	Corn Products Refining Co.	Corn and soya derivatives	70	Quaker Oats Co.	Furoic acid
28	Culligan, Inc.	Zeolites	71	Reilly Tar & Chemical Corp.	Coal-tar products
29, 30	Darling & Co.	Chemicals	72	Ringwood Chemical Corp.	Organic specialties
31	Dawes Laboratories, Inc.	Hormones	73	Riverdale Chemical Co.	Fatty acid esters
32	Dearborn Chemical Co.	Water treatment chemicals	74	Scientific Oil Compounding	Organic specialties
33	Diamond Alkali Co.	Sodium silicates	75	G. D. Searle & Co.	Pharmaceuticals
34	E. I. du Pont de Nemours	Heavy chemicals	76	Shell Chemical Corp.	Petrochemicals
35	Emulsol Chemical Corp. (Witco Chemical Co.)	Surfactants	77	Sherwin-Williams Co.	Organics, paints
36	Fansteel Metallurgical Co.	Rare metals	78	Sinclair Refining Co.	Petrochemicals
37	Farac Oil & Chemical Co.	Fatty acids	79	Spencer Chemical Co.	Formaldehyde
38	H. Gartenberg & Co., Inc.	Tanning oils	80	Standard Oil Co. (Ind.)	Petrochemicals
39	General Chem. Div. (Allied)	Heavy chemicals	81	Wm. J. Stange Co.	Synthetic flavors
40, 41	Glidden Co.	Pigments, soya products	82	Stauffer Chemical Co.	Heavy chemicals
42	Goldsmith Bros. S. & R.	Precious metals	83	Stepan Chemical Co.	Surfactants
43	C. P. Hall Co. of Illinois	Organic acids	84	Suburban Chemical Co.	Sterols
44	Indoil Chemical Co.	Petrochemicals	85-87	Swift & Co.	Soaps, chemicals
45	Inland Steel Co.	Coal chemicals	88	Ultra Chemical Works, Inc.	Surfactants
46	Interlake Iron Corp.	Coal chemicals	89	U.S. Gypsum Co.	Gypsum
47	Spencer Kellogg & Sons, Inc.	Soya products	90	U.S. Industrial Chemicals	Organics
48	H. Kohnstamm & Co., Inc.	Bleaches	91	U.S. Movidyn Corp.	Germicides
			92-94	U.S. Steel Corp.	Coal chemicals
			95	Victor Chemical Works	Phosphates
			96	Vitamins, Inc.	Vitamins
			97	Witco Chemical Co.	Stearates

two pilot plants are going up in Chicagoland: Standard Oil Co. of Indiana will test its methods of producing solid rocket fuel, and Stepan Chemical will do further work on its dimethyl sulfoxide processes.

What spurs the chemical companies

to these large and frequent expansions: customer demand. "Chicago," asserts Thomas Henry Coulter of the Chicago Assn. of Commerce & Industry, "is the most highly concentrated and diversified industrial and commercial area in the world." In

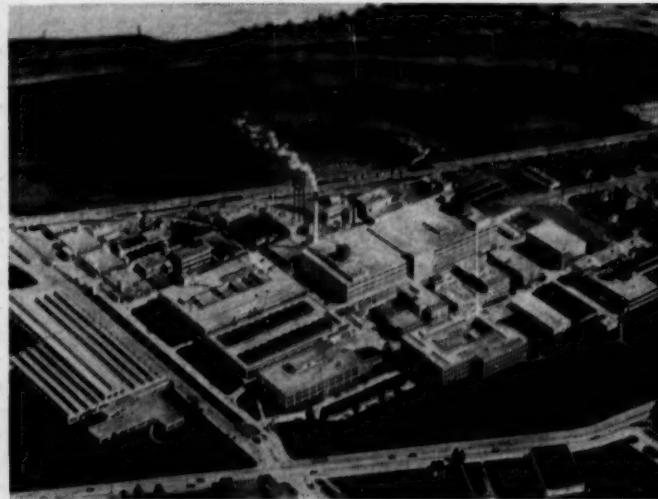
some other chemical centers, chemical producers make up a cozy pipeline or tank-car nexus, selling intermediates to each other; but in Chicago, the big markets for chemicals are in other industries.

'Runner-up Complex': While Chi-

Story continued from p. 21



PRIME PHOSPHATE PRODUCERS: At Chicago Heights, Victor; at Joliet, Blockson—riding the detergent crest.



FATTY ACIDS, PHARMACEUTICALS: New Armour unit, ever-expanding Abbott round out area's processing.

cago's citizens are sometimes accused of harboring a "second-place complex" (because their city has long held No. 2 ranking in population and total business), they have plenty of first-place ribbons in their trophy chest.

For more than 60 years, the city has been the nation's leading railroad center, now is also the trucking center of the U. S. and has the world's busiest airport. And in the future—with the St. Lawrence Seaway assured and with President Eisenhower's backing for federal improvement of the Calumet-Sag Channel—there's a chance that Chicago may become the country's busiest seaport, even though it's 900 miles inland.

In manufacturing, Chicago claims to be top U. S. producer of steel, non-electrical machinery, fabricated metal products, farm equipment, railroad equipment, electronic equipment, plastic molding, and foods (including meats, grains, and dairy products). It holds at least a runner-up position in printing and publishing, paints and varnishes, chemicals, furniture; and ranks third in petroleum refining. Nearly all those industries constitute major markets for chemicals.

Steel's Double Role: The steel industry, of course, is both a big consumer and producer of chemicals. In producing around \$2 billion worth of steel a year, the six big mills

in Chicago and one in Joliet use up tons of sulfuric acid and limestone—all locally produced—and yield quantities of chemicals from by-product coking ovens. Last year, Inland Steel found how it could increase capacity by 300,000 tons/year. The "how" was 180 tons/day of oxygen piped from the nearby Linde Air Products plant. Koppers has added new coke ovens, and U. S. Steel is engaged in a \$50-million revamping and oven-rebuilding program to achieve higher recovery of naphthalene and other coal chemicals.

Molding, Finishing: In fabricating Chicago-produced steel into Chicago-made machinery and other metal prod-

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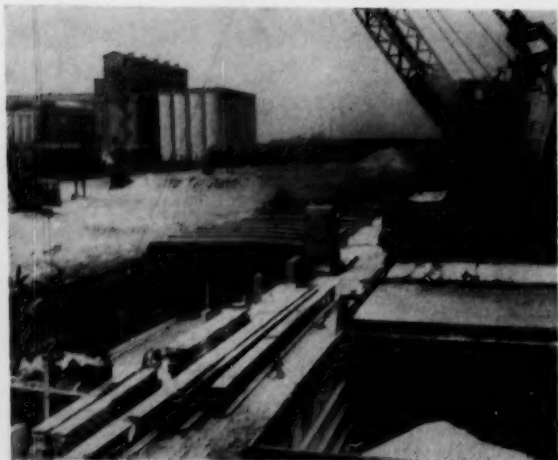
As a result of Methocel's stability, many latex and resin emulsion paints, pharmaceuticals and cosmetics now reach consumers without danger of damaging breakdown during periods of storage.

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Methocel is offered in a broad range of viscosities from 10 cps to 7,000 cps, and aqueous solutions of this remarkably stable gum are odorless, colorless and inert. For a free sample of Methocel or assistance on your specific problem, write to THE DOW CHEMICAL COMPANY, Midland, Michigan, Dept. ME 827B.

you can depend on DOW CHEMICALS





BY WATER AND PIPELINE: From Michigan, soda ash for Blockson; from Southwest, oil for Standard refinery.

Story continued from p. 22

ucts, there's a big market for such chemicals as resins for foundry cores, cutting oils, phosphate and other types of metal cleaners. Most are supplied locally. About 100 compounders do just that, buying their raw materials from the area's basic producers.

Then there's the finishing for those metal products. Sixty firms make organic finishes of various types, and at least a quarter of these have recently expanded capacity. Plating is big business, too—even bigger than in Detroit—(Chicago accounts for 30% of the nation's plating). That's a big outlet for heavy acids, metal salts, metal cleaners.

In addition to the use of oxygen in steelmaking, there's the obvious need for industrial gases in metal fabrication—cutting and welding. Liquid Carbonic is building a \$225,000 oxygen and acetylene plant, and National Cylinder Gas Co. is constructing a \$3.5-million liquid oxygen plant. Medical uses also absorb oxygen and locally produced nitrous oxide, cyclopropane.

Plastics, Paints: To underpin Chicago's plastic molders—who mold 35% of U. S. plastics—Spencer Chemical increased formaldehyde production several years ago, and Catalin Corp. upped resin production and has just finished a polystyrene unit. Barrett Division of Allied Chemical has just gone onstream with a \$500,000 naphthalene plant to supply its phthalic anhydride works, and Sherwin-Williams has doubled phthalic capacity to 6 million lbs./year with a \$750,000 addition. Other companies have had to boost output of plasticizers, pigments, fillers and coatings.

Chicago area plants turn out about 15% of the nation's paints. Sherwin-Williams has been aggressively expanding and integrating its Chicago operations; Sears, Roebuck's recent expansions now provide paint for its stores in 10 Midwest states; and Montgomery Ward makes paints here for all its 599 outlets. One big local market for paints and varnishes—also adhesives—is the city's furniture industry, with \$380 million/year output.

As meat-packing capital of the U. S., Chicago consumes chemicals for meat processing and produces raw materials—such as tallow for soap and glycerine. Animal by-products gave the meat packers their start in adhesives and pharmaceuticals; but in recent years, these firms have rounded out their lines to include processing of synthetic chemicals. In all, 97 Chicago-area pharmaceutical plants turn out \$250 million worth of products a year—of which more than \$85 million represents Abbott's production. Searle and Wilson Laboratories both expanded their facilities during 1952.

Most of Chicago's industries have shown steady production gains over the past five years, and the area's 481 new plants (\$100,000 or more in cost) in the past year are the largest number for any spot in the country. So long as total manufacturing activity keeps rising in Chicago, it seems, there'll be continuing motivation for chemical industry expansion in this land-air-water "crossroads" area.



KAUFMAN-PARRY

SOURCES OF CITY'S BIGNESS: Mile-square stockyards, miles-long railroad yards—both world's largest.

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PLASTICS and RESINS

*Reg. U.S. Pat. Off.

Turning the Tide?

Reversing a trend toward the South that began in colonial days, the Filtered Resin Products Co., Inc. (a Georgia concern) will start processing this summer along the Delaware River.

Site: a \$300,000 plant at Fieldsboro, N.J. (still under construction)—across the river from U.S. Steel's Fairless Works.

Resin processing was one of America's earliest industries, started in New England in the 1660s when New England settlers tapped the sap on Cape Cod trees to supply tar caulking for wooden boats. But since then the industry has moved southward with increasing rapidity.

Reason for Filtered Resin's move northward: the company is trying to move in closer to its industrial customers—paint, varnish, paper chemical and printing ink producers.

Steam-heated barges will carry the gum (tapped from 100,000 acres of pine trees in Georgia and northern Florida) to the plant—where an estimated 25 million lbs. will be processed annually. Each barge will carry between 1,000 and 1,200 tons, will be tug-towed 900 miles up the coast via the inland waterway.

Food for Thought: Filtered Resin's move may not start a mass migration of resin producers northward—but it will certainly set off some sober discussions among the firm's chief competitors.

That Filtered Resin officials are sold on the idea is obvious. They've already applied to the Army Engineers for permission to construct a 135-ft. pier into the Delaware to accommodate unloading barges, are building a series of tanks for raw materials and finished products with capacity far in excess of presently scheduled production loads.



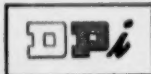
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Rare organic
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We've been making Eastman Organic Chemicals for 35 years and there are some 3500 of them which we supply regularly to science and industry. When you need special organics in quantity, you'll usually find it cheaper to make use of our experience and equipment than to try unfamiliar syntheses on your own hook.

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Serving Two Ends

HOW TEXAS CITY'S Union Carbide employees serve their community was the theme of this window display—set up as part of Texas Industry Week festivities.

Containing 50 pictures of Carbide's Texas City workers who are

active in civic, church and school affairs, the spread points out graphically to passers-by how big the company's contribution to town activities really is. Industrial relations value of the idea is also noteworthy.



LOW-COST INTERMEDIATES IN TANK-CAR QUANTITIES

This versatile trio represents the most economical source of the amine group because of their low equivalent weights and moderate prices. Marketed by CSC in both anhydrous and aqueous forms, they are available for shipment in large-volume quantities (tank cars) as well as in drums and smaller containers. Write for latest Technical Data Sheet. Industrial Chemicals Sales Dept., Commercial Solvents Corporation, 260 Madison Avenue, New York 16, N. Y.

MONOMETHYLAMINE CH_3NH_2

Uses

Manufacture of amide and sulfonated amide-type detergents and surfactants. Synthesis of caffeine, aminophylline and desoxyephedrine. Manufacture of photographic chemicals, the explosive tetryl, amide-type plasticizers, ion-exchange resins, corrosion inhibitors and paint removers.

Properties

Molecular Weight	31.06
Boiling Point at 760mm, °C	- 6.79
Flash Point, Tag Open Cup, °F	34 (30% sol)
Density at 20°C	0.912 (30% sol)
Weight per U.S. Gallon at 68°F, lbs.	7.6 (30% sol)

DIMETHYLAMINE $(\text{CH}_3)_2\text{NH}$

Uses

Raw material in manufacture of thiuram sulfide-type vulcanization accelerators and of dimethyldithiocarbamic acid salts used as fungicides. Neutralizing and solubilizing agent in preparation of concentrated solutions of 2,4-D salts. Manufacture of anti-malarials.

Properties

Molecular Weight	45.08
Boiling Point at 760mm, °C	6.88
Flash Point, Tag Open Cup, °F	54 (25% sol)
Density at 20°C	0.921 (25% sol)
Weight per U.S. Gallon at 68°F, lbs.	7.7 (25% sol)

TRIMETHYLAMINE $(\text{CH}_3)_3\text{N}$

Uses

Preparation of long-chain quaternary ammonium compounds used as softeners, lubricants and waterproofing agents for textiles. Used with benzoyl peroxide to "set" methacrylate resins. Synthesis of cationic surface-active agents.

Properties

Molecular Weight	59.11
Boiling Point at 760mm, °C	2.87
Flash Point, Tag Open Cup, °F	38 (25% sol)
Density at 20°C	0.913 (25% sol)
Weight per U.S. Gallon at 68°F, lbs.	7.6 (25% sol)



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still further valuable commercial applications. Resorcinol and its derivatives may be hydrogenated, alkylated, aminated, sulfonated, nitrated, carboxylated and esterified—to mention only a few of the numerous reactions possible.

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B & I.



KRUPP: Moving into new fields (of production) on a global scale.

FOREIGN.

Expansion/Germany: The House of Krupp—barred by the Allies from producing coal and steel—is expanding operations in the field of chemistry. Alfred Krupp, 46-year-old heir to the former German armament empire, admits the company has licensed synthetic fiber-producing machinery from a U.S. firm; company representatives have been in South America recently looking over possible investments.

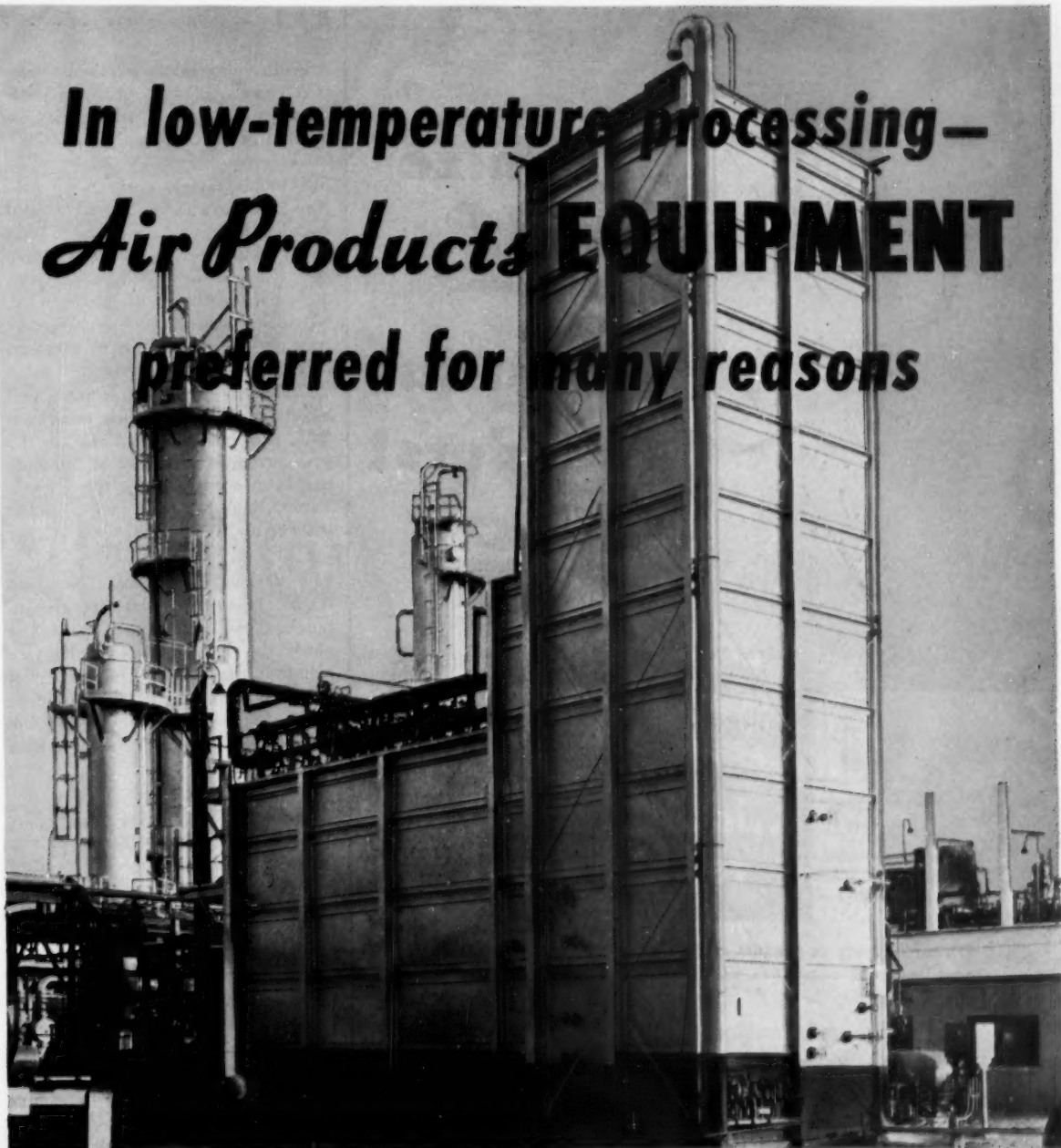
For the first time since the war, the Krupp concern operated at a profit in 1954. Total turnover for the year: close to 1 billion DM.

Heavy Chemicals/India: The government of India's intention of setting up a heavy chemical industry in Rajkot, western India, advanced a stage further last week with the establishment of a Development Council, charged with recommending production targets, coordinating production programs. The Development Council is the eighth such body to be set up under the Industries (Development and Regulation) Act of 1951.

Abrasives/Argentina: The Carborundum Co. (Niagara Falls, N.Y.) will build a plant in Argentina capable of turning out 600 tons of various types of bonded adhesives annually. Site: Campana (near Buenos Aires); cost: 15 million pesos.

In dollar terms the plant will mean an annual saving of \$700,000 to

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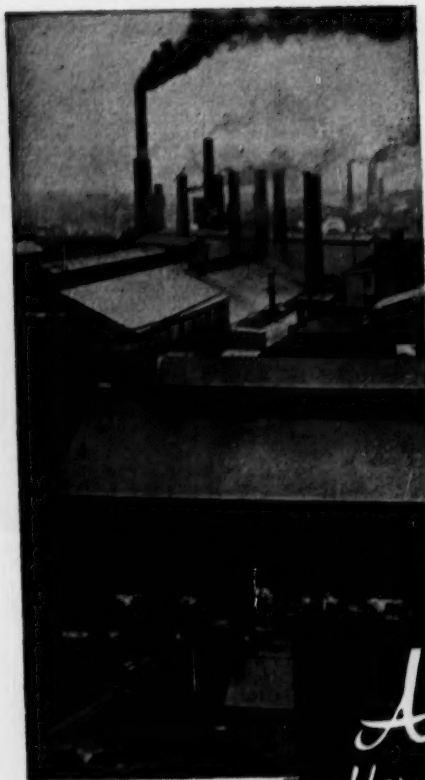


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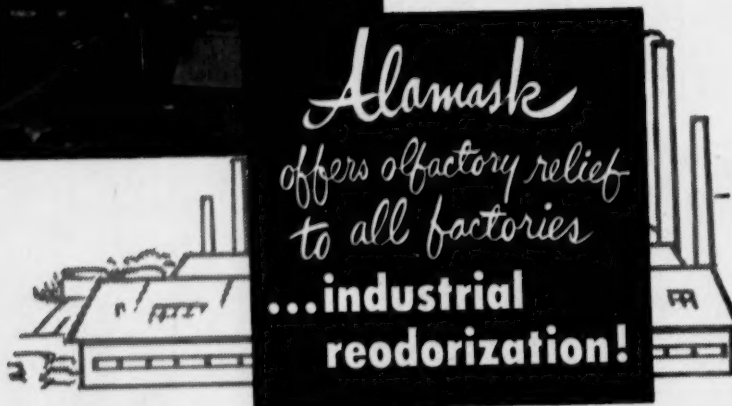
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If your industry or product is one distressingly burdened with an identifying obnoxious odor, let an ALAMASK® provide effective relief.

Product Reodorization — ALAMASK product reodorization means the addition of an odorant to an industrial product to improve its odor, to lessen its malodor, or to add identification to the product.

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Whether your problem is a plant malodor or a product malodor, our experienced chemists and chemical engineers can help you.

For technical assistance and for complete information on ALAMASK industrial reodorants, write today to Industrial Reodorants ("Alamask") Division, Rhodia, Inc., 230 Park Avenue, New York 17, N. Y.

Rhodia INC.

B & I.

Argentina—heretofore required to import two-thirds of its yearly requirements—900 tons of adhesives. Estimated production date: mid-1956.

Styrene/Brazil: Koppers Co. Inc., Firestone Tire & Rubber Co. and Brazilian interests have joined to form a new company—Companhia Brasileira de Estireno—to produce styrene monomer at Cubatao, Brazil. Capacity: 10 million lbs. of styrene monomer annually—chiefly for sale to Brazilian polystyrene manufacturers.

Under contract terms, Koppers and Firestone will have slightly more than 50%, or a controlling interest, in the new enterprise. A loan of \$2.5 million has been secured from the Export-Import Bank to apply on U.S. dollar costs involved in construction.

Salk Vaccine/Costa Rica: The Costa Rican Ministry of Public Health will purchase 100,000 injections of the newly developed Salk antipolio vaccine from the U.S. Free injections will be given preschool age children in an effort to avoid a polio epidemic similar to that which struck Costa Rico two years ago.

Three-Way Deal: Japan will import 11,000 tons of raw sugar from Cuba on a nondraft basis with funds received from Formosa in payment for Japan's synthetic fiber manufacturing technique.

The Tachiwaka Research Institute in Kyota will sell its rayon manufacturing know-how to Formosa for \$1 million, will import 11,000 tons of raw sugar from Cuba at slightly more than \$98/ton with this income. The company will then sell the sugar to sugar refiners in Japan for \$110/ton, is slated to donate the additional income to the Japan Foreign Trade Promotion Assn.

Fertilizer/Exports: The Foreign Operations Administration has authorized purchase of some 116,000 long tons of fertilizer for shipment to India, Turkey and Pakistan.

The Indian purchase will be made under a renewal of a previous agreement (signed last week) under which the Indian government will receive \$4 million worth of fertilizer for resale. An additional \$1.1 million worth of fertilizer will be purchased for use in fertilizer demonstrations.

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POLY-SOLV

A remarkably versatile series of solvents, the POLY-SOLVs are now available in commercial quantities—drums, tank cars, and compartmented tank cars—from the Doe Run plant at Brandenburg, Kentucky.

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ethylene glycol monomethyl ether
POLY-SOLV DM
diethylene glycol monomethyl ether
POLY-SOLV EE
ethylene glycol monomethyl ether
POLY-SOLV DE
diethylene glycol monomethyl ether
POLY-SOLV EB
ethylene glycol monobutyl ether
POLY-SOLV DB
diethylene glycol monobutyl ether

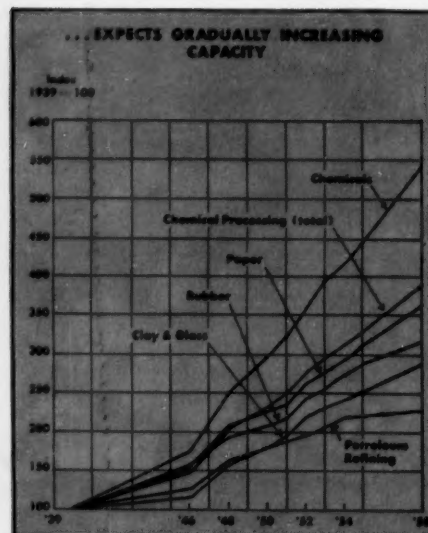
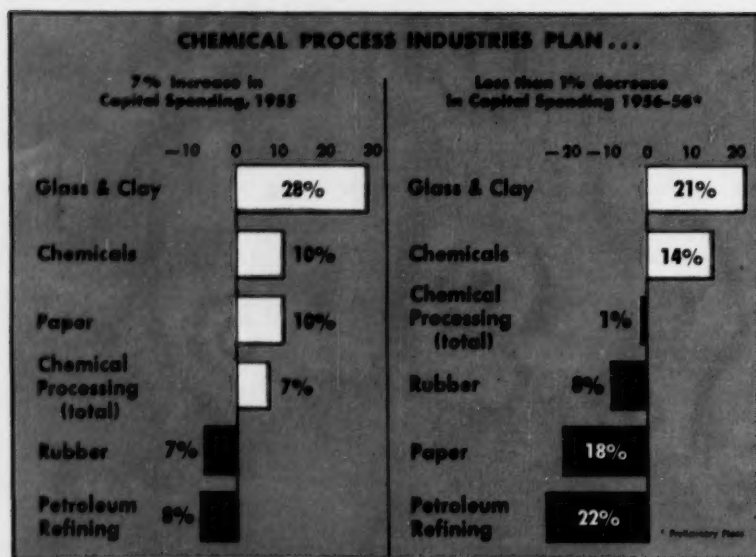
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ETHYLENE DICHLORIDE • METHANOL • SODIUM METHYLATE • ETHYLENE DIAMINE • CAUSTIC SODA • SODA ASH • CHLORINE • SULPHURIC ACID
SULPHUR • AMMONIA • NITRATE OF SODA • BICARBONATE OF SODA • CARBON DIOXIDE • SODIUM CHLORITE • CALCIUM HYPOCHLORITE

2853



Business Booming, Bound to Be Better

Chemical processing companies plan to spend an average of 7% more in 1955 for new plants and equipment than they did in 1954—and the rising trend should carry well into 1956 and 1957.

That's the optimistic forecast augured by McGraw-Hill Dept. of Economics' eighth annual survey of business plans.

Particularly remarkable because of the confidence it reveals in the long-term stability of chemical markets, this year's survey predicts that sales will increase 7% in 1955 (over 1954)—over the long haul, sees sales rising a total of 21% by 1958.

Pace-Setter: Taken in perspective, the chemical industries' capital spend-

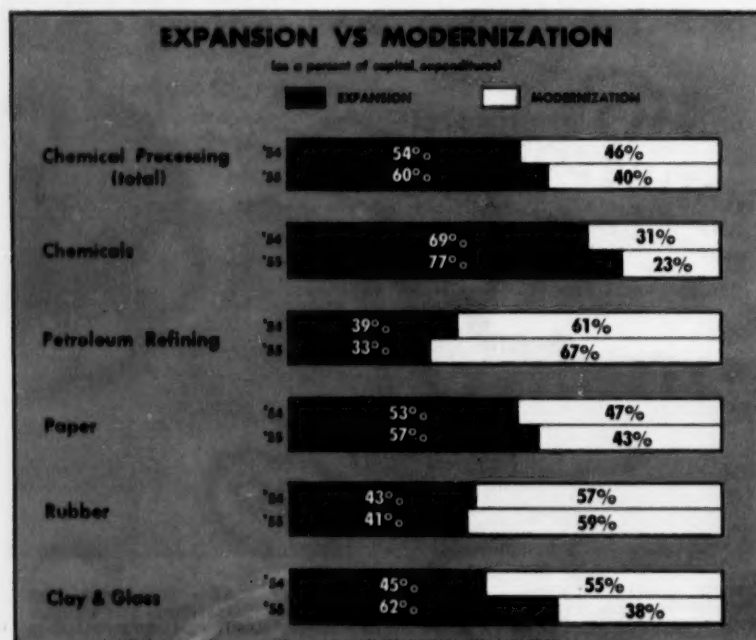
ing forecast is even more impressive. United States business, as a whole, plans an increase in capital spending of 5% in 1955 over 1954; manufacturing companies (over all) plan to up their capital spending by only 3%.

There's a wide range of spending predictions between various sectors of the industry, however. Clay and glass manufacturers, for example, say they will increase expenditures by 28% this year; both basic chemical producers and papermakers plan a 10% rise; rubber companies and petroleum refiners admit their year-end capital outlay will be lower this year than last (by 7% and 10%, respectively).

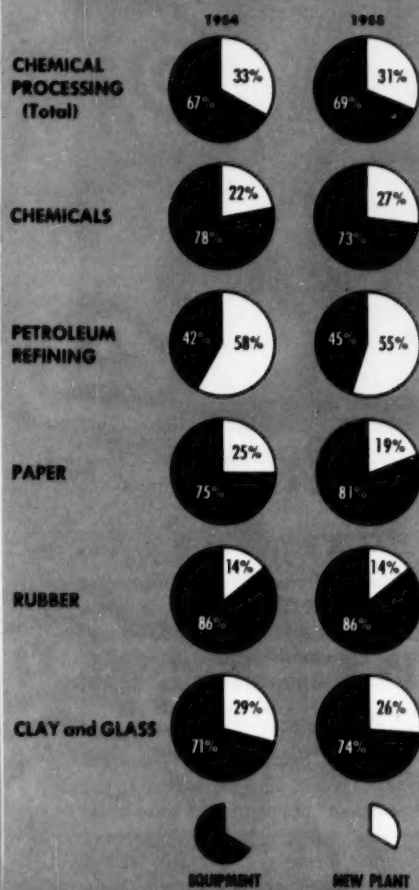
Where the spending dollar in the chemical industry is going this year may also evoke a pause for reflection.

Rubbermakers state that last year they spent the highest percentage of total outlay for equipment (86% of \$131 million). Basic chemical, paper and clay and glass producers weren't far behind in their emphasis on new equipment (*see graph*). Only sector of the industry putting its weight behind new plant expenditures: petroleum refining producers who say they spent 42% for equipment, 58% for new plants. (of a total of \$750 million).

This year there's very little change in the general picture. Paper and clay and glass producers are trending even



WHERE THE CAPITAL SPENDING DOLLAR IS GOING



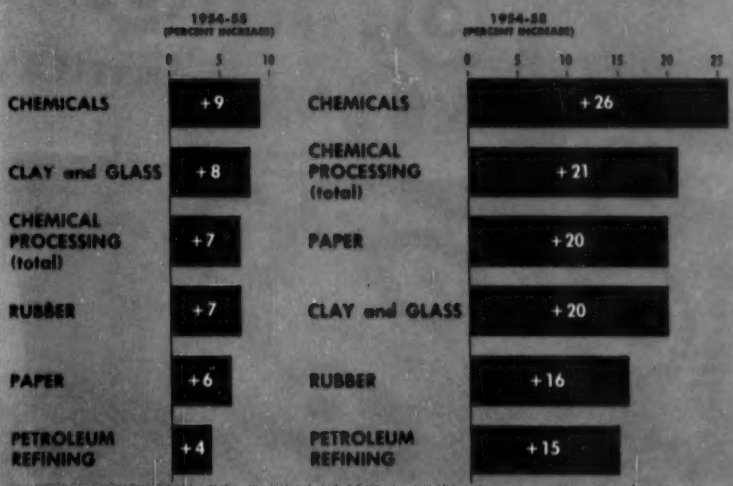
further toward equipment spending; only basic chemical firms are swinging in the direction of heavier new plant expenditures.

Two-thirds of all chemical processing companies expect that their new equipment will start paying off in 3 to 5 years; basic producers look for the payoff in 4 to 5 years.

All in all, it betokens pleasant prospects for equipment manufacturers across the nation.

More New Plants: Asked to break down their spending plans in expansion and modernization costs, chemical producers reveal they expect to spend more for expanded capacity this year than last. Rubber and petroleum refining are the only two classes within the industry that will rely on modernization of present facilities to keep pace with the fast-moving chemical picture. Chemical processors—as a whole—(see table) will up their per-

SALES EXPECTATIONS VARY IN CHEMICAL PROCESS INDUSTRIES



centage of total capital expenditures (\$3,017 million) ticketed for new plant construction to 60% this year; basic producers will hike the ante from 69% to 77%.

Breakdown on Sales: From a sales angle, reporting firms are equally forthright about the economic state of their industry. Basic chemical makers predict sales will be up 9% this year (over 1954) as compared with 7% for manufacturing companies in general; by 1958, they believe that sales will have jumped a full 26% (again over 1954 figures) as compared with 21% for manufacturing companies.

Biggest increase in total capacity of all sectors of manufacturing, too, is reported by the chemical industry.

It expects a 7% increase in this year, predicts an additional 22% increase by 1958. Paper producers, in turn, look for a 7% increase this year, and additional 16% by 1958. Bringing up the tail end of the parade: petroleum refiners—who say they'll only have a 5% increase in industry capacity by 1958.

Close to Ideal: An indicator that all signs point to a good year ahead: chemical producers (on the average) say they were operating at 88% of capacity at the turn of the year—ideal operating rate would be 92%.

Highest operating rate reported by any section of the manufacturing community: the paper industry—producing at 97% of capacity (tabbed as just

right by industry spokesmen).

Clay, glass and petroleum refining companies agree they're running only 1% below the ideal capacity production rate; rubber producers say they're only 3% below the preferred rate.

What's more: production rates are running far ahead of "anticipated rates" in most sections of the chemical industry so far this year. Competition has increased, but improved efficiency and the influence of inventory fluctuation on profits has been "highly satisfying to most producers. That means capacity rates should go up accordingly—perhaps even in excess of early predictions.

Unusual—To an Extreme: Even more encouraging:

If early estimates are revised upwards—as they have been in the past—1956, 1957 and 1958 will be years of high, if not record, prosperity in the chemical process industries.

SURVEY NOTE

McGraw-Hill's economic survey is nationwide, covers all branches of industry. Companies surveyed account for 60% of employment in the highest capital spending industries (chemical, petroleum, utilities, steel, autos, railroads). In terms of employment figures, the survey covers 7.5 million workers—one-third of all industrial (excluding commercial) employment.

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SECRETARY WEEKS: On China-bound borax, a door is slammed.

LEGAL

Shipments Diverted: Evidence that more than \$115,000 worth of borax and boric acid from the U.S. wound up in Communist China has led to temporary suspension of U.S. export privileges for Kesco G. m.b. H. of Frankfurt, West Germany, demonstrating that Secretary of Commerce Sinclair Weeks is maintaining the "closed door" policy in respect to trade with that country. In ordering denial of export privileges pending a full hearing, the Office of Export Supply specified that U.S. firms should not enter into any export deal with Kesco without an o.k. from Washington.

Heavy Counterclaim: Reichhold Chemicals seems to have taken the offensive in the civil suit brought by Delaware Chemicals in chancery court at Wilmington (CW, March 12, p. 38). While Delaware is asking \$1.15 million for alleged breach of contract on methods of producing pentaerythritol, Reichhold has filed a counterclaim for a total of \$2.15 million. Reichhold charges that Delaware's actions and misrepresentations caused Reichhold heavy financial losses.

Disclosure Charged: Rarolite Chemical Co. (Raritan, N.J.) is suing for an injunction to keep Greenwood Laboratories (New York) from disclosing to competitors certain trade secrets about Rarolite's paints, lacquers and printing ink emulsions.

HOW HERCULES HELPS...

▼ **AIMING FOR THE "POCKET"**, this bowler wants the alley he uses highly polished and free of "ruts". That's why bowling alley surfaces are protected with nitrocellulose lacquer to keep them in top condition. The fast-drying protective coating known, lacquer makes it possible to put an alley back in play within hours after it has been refinished. This same tough finish protects bowling pins and other sports equipment.



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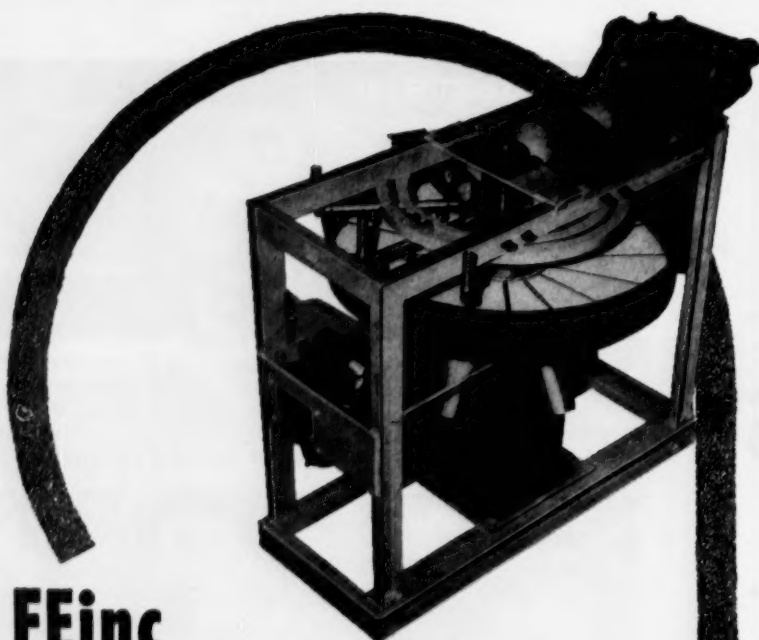
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B & I.



GOV. FOLSOM: In right-to-work fracas, a Southern governor dissents.

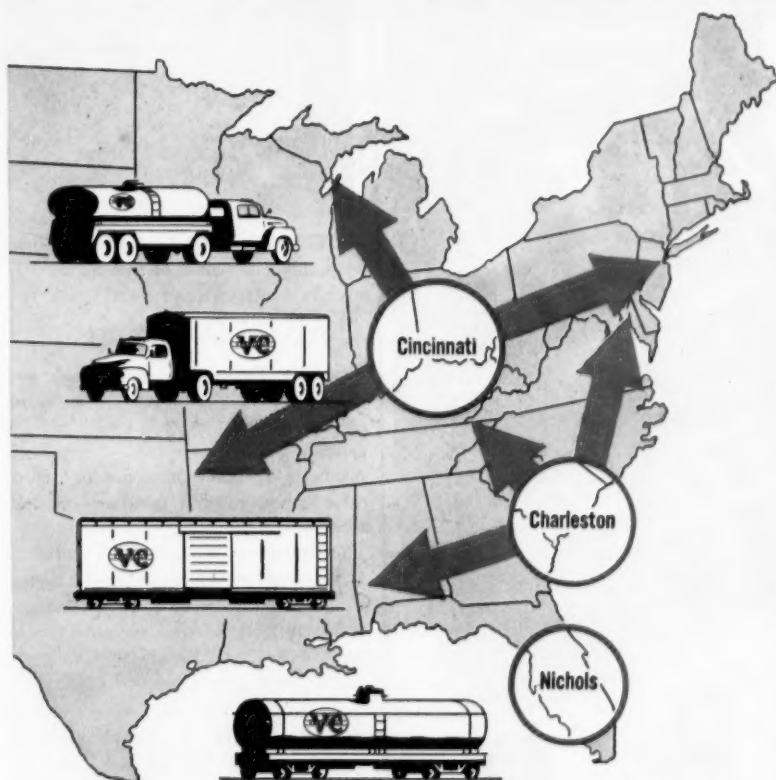
LABOR.

Tide May Turn: Signs this week are that the tide may be about to turn against the so-called "right-to-work" laws. Campaigns are on foot in Louisiana and Florida to repeal such laws in those states, and in four states with concentrations of chemical industry—Indiana, Maryland, Massachusetts and West Virginia—legislators have voted down right-to-work bills. Similar bills also appear doomed to defeat in Michigan and Ohio. So far, all the Southern states are sticking with their right-to-work laws, but Gov. James Folsom of Alabama recently lambasted these laws as tending to foment strikes.

Local Option: One additional paid holiday and a more generous vacation plan are the new benefits in the two-year contract between U.S. Rubber and United Rubber Workers (CIO), covering some 33,000 employees in 19 plants. The extra holiday will be selected by the local union at each plant. U. S. Rubber says these are the same terms the company had offered before the workers went out on a one-week strike.

No Privacy on Wages: In collective bargaining, an employer must furnish not only general wage data, but also wage rates for individual employees when the union asks for such information, the U.S. Supreme Court ruled last week. This upheld a 4-to-1 National Labor Relations Board decision.

How to have inventories without carrying inventories



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Phosphorothioites
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compounds and phosphatic
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MONEY-SAVING SERVICE

Do you use phosphoric acids, sodium phosphates or other chemicals such as those listed at right? Do your sales and production departments demand inventory levels to meet any and all possible requirements? Big inventories cost big money. They tie up capital for long periods. Costs are not limited to materials but also include the expense of storage facilities, containers and many other items.

There is a simple, easy way to have all the advantages of big inventories without the extra costs usually involved. Just depend on Virginia-Carolina Chemical Corpor-

ation to maintain your inventories for you. V-C plants are strategically located in the heart of the Ohio valley and in the center of the industrial South. Excellent rail and public trucking facilities are available and V-C maintains its own fleet of trucks, including tank units, for emergency deliveries.

V-C is equipped to maintain inventories for you and make delivery in a matter of hours—not days. V-C is famous for product quality, dependable service, reliable technical assistance, and speedy deliveries. It will pay you to see V-C!



Virginia-Carolina Chemical Corporation also produces—V-C* Fertilizers and V-C* Superphosphates...V-C* Phosphate Rock...Vicara*, Zycon*, Wavecrepe* and other zein fibers...V-C* Multiwall Paper and Textile Bags...V-C* Cleaners.

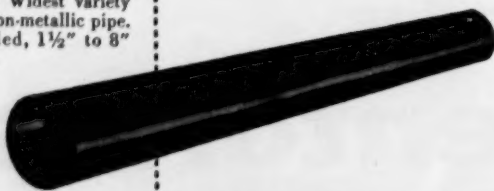
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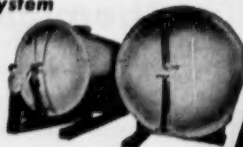
ACE hard rubber . . . now more than a century old . . . long the finest corrosion-resistant pipe available. Widest variety of fittings of any rigid non-metallic pipe. Sizes $\frac{1}{4}$ " to 8" threaded, $1\frac{1}{2}$ " to 8" flanged. *Bulletin CE-51.*



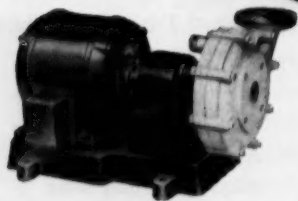
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CUSTOMS' KELLY: Gets redefined rules on 'fair value' to put a . . .

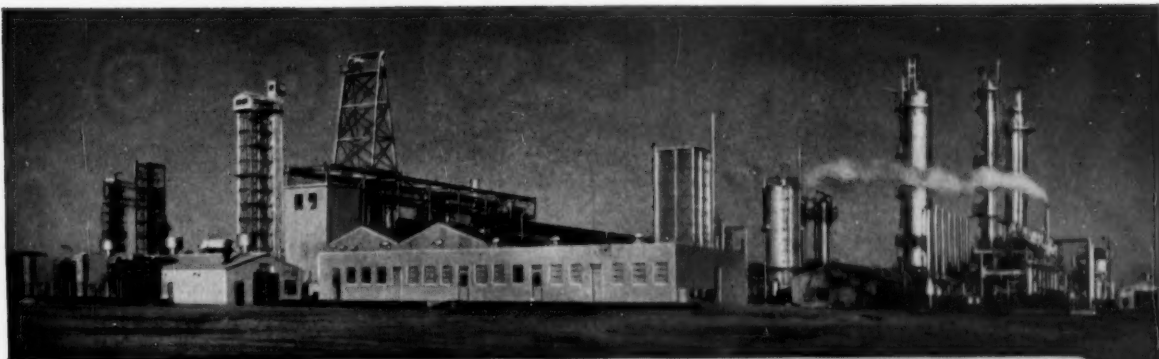
Curb on Dumping

Treasury Dept. this week took another step to streamline enforcement of the Antidumping Act of 1921. It redefined the "fair value" of imported products to make it easier to determine when foreign goods are being dumped in the U.S.

The move is designed to reassure U.S. industries—and notably the chemical industry, whose fears of foreign dumping have revived strongly in the current period of stiffening foreign competition. Dumping complaints by U.S. business are on the upswing these days. Treasury now has more than a score of antidumping cases on its books compared with none during most of the postwar period. It doesn't disclose what products are involved.

The new antidumping procedures, which will become effective May 9, should make it possible for Customs Bureau Director Ralph Kelly to spot dumping and move to check it more rapidly. This not only promises quicker relief for American victims of dumping, but also will reduce the delays and uncertainties that have hampered importers accused of dumping.

What It Means: Under the new rules Treasury will define the fair value of an imported product as the price the foreign manufacturer usually receives in his normal commercial transactions both domestically and in a third market. This is much easier



ANHYDROUS AMMONIA... 250 tons per day

by the exclusive



sequence

Another Ammonia Synthesis

Plant by Foster Wheeler

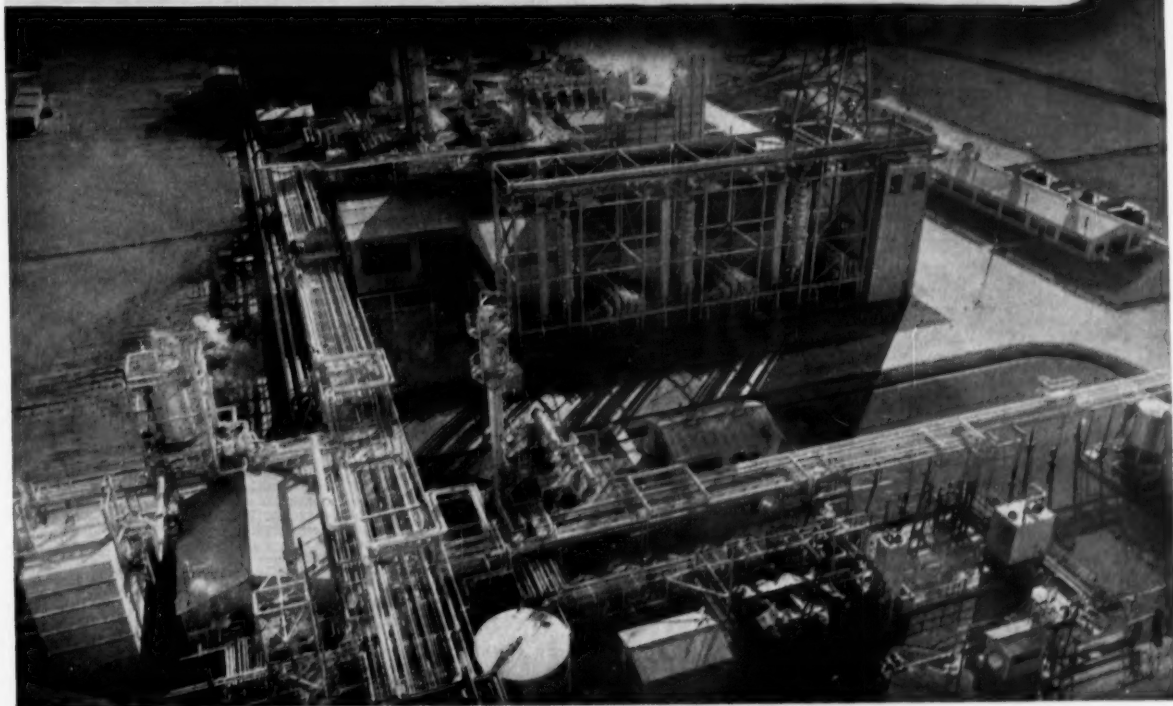
now on stream at

Grace Chemical Company

Designed and built by Foster Wheeler, this modern Grace Chemical Co. plant at Memphis, Tenn. has a capacity of 250 tons of anhydrous ammonia per day.

It is another outstanding example of the proved economy and dependability of the FW Sequence—Texaco partial oxidation, FW liquid nitrogen wash and Casale ammonia synthesis. Write for the March-April issue of *Heat Engineering*, containing the complete story. Foster Wheeler Corporation, 165 Broadway, New York 6, N. Y.

FOSTER WHEELER





*Creative engineering . . .
in chemistry and equipment*

In the fiercely competitive toilet goods field, you've got to step lively to stay at the top.

To keep leadership in this field, companies like Colgate-Palmolive are working constantly to turn out new products, or find ways to make current ones better.

An example of the research efforts that lie behind a new product is found in the story of Colgate Dental Cream with its anti-decay ingredient "Gardol" (Colgate-Palmolive Company's trademark for Sodium N-Lauroyl Sarcosinate).

Carefully studied

Many years of laboratory work, which involved developing tests to predict the anti-carries effectiveness of potential tooth paste ingredients, preceded the formulation of the new tooth paste and the clinical proof that it was effective when used just morning and night. Only then could the Sales Division make plans to introduce this new, highly effective product to the American public.

Colgate was naturally eager to go into production. A rush order for several huge glassed steel reaction kettles went out from their Jersey City head-

quarters to The Pfaudler Co., in Rochester, N. Y.

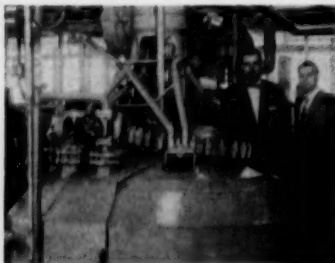
These giant vessels, with an inside surface of acid-alkali-resistant glass, give all the benefits of the little glass beaker in the laboratory. They resist chemical attack, won't contaminate delicate products. Their smooth surface makes washing easy and efficient. And almost nothing sticks to glass. Hundreds of dollars a week can be saved with glassed steel equipment, because it provides smoother processing, easier cleaning.

"Off-shelf" delivery

Under a unique program of stockpiling this type of equipment, Pfaudler was able to fill Colgate-Palmolive's order in record time. The equipment arrived in Jersey City right on schedule, to begin processing the new "Gardol."

The rest of the "Gardol" story is now marketing history.

Maybe you can solve a production problem with glassed steel, combining the structural strength of steel with the corrosion resistance of glass. Resists alkalis up to pH 12 at 212°F., and almost all acids. Write for Bulletin 902-CW-4, our Buyer's Guide.



Big reaction vessel in Colgate's "Gardol" plant is inspected by Dr. Hal Cooper, Colgate's Assistant Research Director in charge of development, and John Monick, Head of the Organic Chemicals Division. "Gardol" process starts at top of four-story building, finished product comes out of final reactor at the bottom. Pfaudler built the big reactors in jig time to get the plant on stream.



A laboratory investigation on "Gardol" is being carried out by Dr. Fred Gerecht, Group Leader in the Exploratory Organic Division. Dr. Gerecht is conducting a precision distillation designed to insure the purity of the raw materials used in "Gardol."



Evidence that "Gardol" lowers level of decay-causing acid on teeth of many persons for as long as 48 hours was accumulated by hundreds of tests like this one. Colgate-Palmolive Group Leader Roderick Manahan is checking the pH on the teeth of a young volunteer. Watching is the Head of Research's Oral Products Division, Dr. William King, who played a key role in the development of the anti-decay ingredient.

The PFAUDLER CO., Rochester 3, New York

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B & I.

to determine than the "foreign market value" formerly used as a yardstick to determine dumping.

Determination of foreign market value has involved, among other things, determining costs of production in foreign countries—frequently a difficult or impossible job.

In addition, Treasury will be able to use prices of similar products made by other foreign producers to set the fair value of a product if it is unable to determine the normal commercial price of the specific article under investigation.

Determination of whether or not dumping is occurring is automatic once the fair value of a product has been established. If the product is being sold in the U.S. at less than the fair value Treasury will rule that it is being dumped. Then, under the new procedures, it will be up to the Tariff Commission to hold public hearings to determine whether the dumping is causing or threatening serious injury to a competing American industry. If this is found to be the case Treasury will apply an anti-dumping duty equal to the difference between the actual sales price in the U.S. and the fair value of the commodity in question.

KEY CHANGES. . .

Bjorn Anderson, to vice-president, plastics division, Celanese Corp. of America (New York).

E. N. Beesley, to chairman, executive committee, **C. R. Miller**, to vice-president, production, and **J. O. Waymire**, to board treasurer, Eli Lilly & Co. (Indianapolis).

Bancroft W. Henderson, to president, American Synthetic Rubber Corp. (Louisville, Ky.).

Francis H. McAdoo, Jr., to president, Emerson Drug Co. (Baltimore).

J. P. Cunningham, to manager, and **J. E. Toevs**, to sales manager, Synthetic Rubber Sales Division, Shell Chemical Corp. (Torrance, Calif.).

George W. Naylor, to vice-president, Chemical Division, Koppers Co., Inc. (Pittsburgh).

F. Clayton Nicholson, to vice-president, Davison Chemical Co. Division, W. R. Grace & Co. (New York).

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SALK: His research techniques are opening . . .

WIDE WORLD

New Paths for Virus Probers

Success of the Salk vaccine underscores a situation that is becoming more and more clear this week to virologists. Stated simply, it's this: prophylaxis—immunization by vaccine—is the best hope of countering the virus diseases; antibiotics and synthetic drugs are not meeting the challenge.

Most virus men are now of the "ounce of prevention" school, put it squarely up to future vaccines. Salk's polio work, it is felt, will be instrumental in furthering the development of vaccines for other virus diseases.

Salk tells CW that the tissue-culture (monkey kidney) technique he used in developing the polio vaccine has

"obvious implications" in this work.

One leading exponent of this approach is Nobel laureate John Enders, Harvard professor and researcher at Boston's Children's Medical Center. Enders last week revealed to CW that he was making progress in his efforts to develop a measles vaccine. He has used human kidney sections to culture the suspected causative virus.

Also at Harvard, virologist Thomas Weller has succeeded in utilizing human kidney cells as the medium for growing chicken pox viruses.

Respiratory infections are coming under tissue culture attack at other virus research centers. Robert Huebner, chief of the Virus Section at

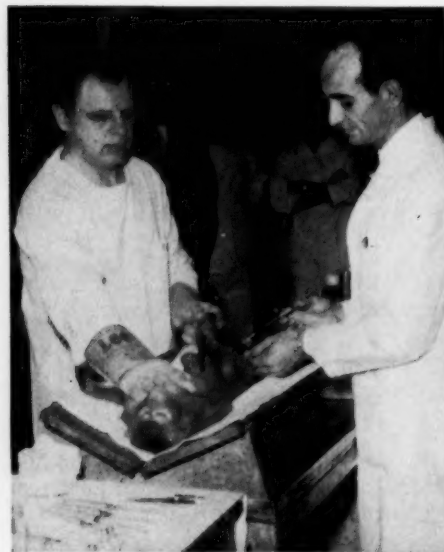
the National Institutes of Health (Bethesda, Md.), recently isolated six types of virus* that cause such symptoms as fever, sore throat and red eyes. Immunizing agents resulting from these studies are now undergoing preliminary trials.

Normal tissue cells aren't the only media for such studies. At the Army's Walter Reed Hospital (Washington, D. C.), for example, Maurice Hilleman has used carcinoma cells in work that resulted in the isolation of a virus (named RI 67) linked to a respiratory ailment.

And only last week, University of California (Berkeley) pathologist Warren Bostick disclosed evidence of a link between viruses and human cancer. His virus, obtained from the tissues of victims of Hodgkin's Disease, proved toxic to mice, churned up speculation about cancer-immunizing agents. While they are considered to be highly unlikely, such talk underscores the high interest in immunization studies.

It's improbable that even effective new antiviral drugs would lessen the research going into potential vaccines. That in no way minimizes the need for chemical research; despite the emphasis on immunization, virus-disease cures are still very much in demand.

* Called APC viruses by researcher Huebner—for their adenoidal, pharyngeal, conjunctival effect.



WIDE WORLD

VACCINE TESTING: From living tissue, the means for self-protection.

Q. Could chemical research make wire insulating enamel withstand higher temperatures without disintegrating?

**A. EVEN AT 300 DEGREES F
WIRE WON'T SHED THIS COATING**

Electrical conductors working at high temperatures—in motor windings, for example—tend to shed insulating enamel coatings and *stop* working if things get too hot!

Alkanex wire enamel is a new General Electric chemical development that keeps such wire on the job. Providing nearly 50% more resistance to heat than conventional insulating enamels, Alkanex enamel withstands 340°F for limited periods and at least 300°F in continuous service.

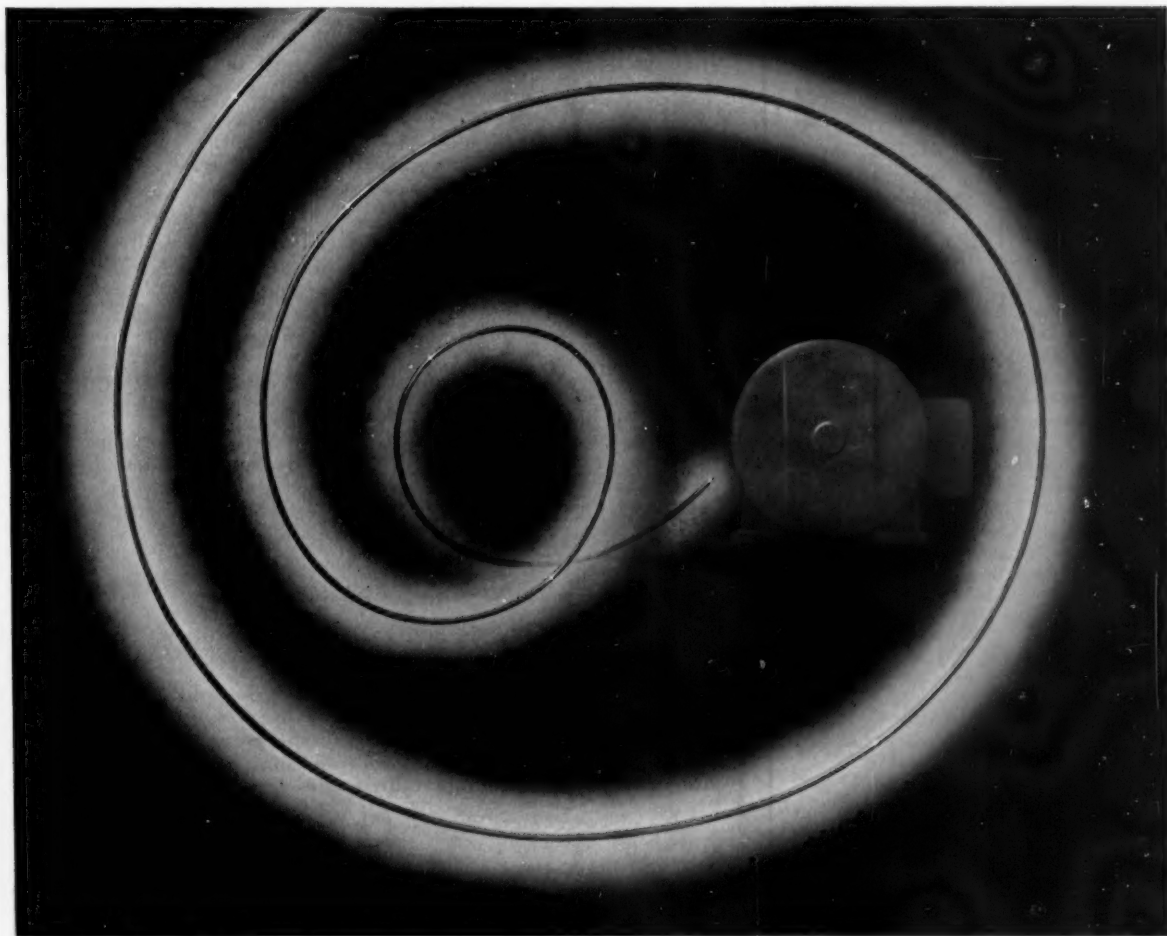
Because of its superior ability to withstand high temperatures, Alkanex enamel offers exciting new design potential—for upgrading motors to carry bigger loads . . . or for achieving smaller, more compact units.

Alkanex enamel represents a giant step forward in the task of building better electrical equipment. G-E research—in this and other industrial areas—will continue to play an important role, making progress for all through G-E *chemical* progress.

Another example of



**CHEMICAL
PROGRESS**



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add one



to hot water
...packet and all

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—or any product added to water in fixed amounts.

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SOLVENT POWER • VISCOSITY • MW/HYDROXYL RATIO •
NONTOXICITY • TASTE

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CARRIER • ANTI-FREEZE • ALKYL BASE •
EMOLLIENT

RESEARCH

'Moly' Goes Wildcatting

Molybdenum's commercial personality has traditionally borne the imprint of metallurgy—and very little else. Recently, however, it has taken on the marks of a chemical, gaining a place for "moly" in catalysts, colors and agricultural products. Last week, an accelerated attempt to bring out "moly's" chemical alterego was signaled by some organizational changes at Climax Molybdenum Co.

The reshuffling creates a chemical market development division to rank with metallurgical market development and mesh with a new chemical research staff at the company's Detroit laboratories.

Right now, chemical applications other than those mentioned above are strictly speculative. But seven lines of interest are emerging as pathways for Climax research.

- Heteropoly acids (e.g., phosphomolybdic and silicomolybdic)—high-molecular-weight materials that precipitate proteins and organic bases, form hetero-ions with many elements—are due for evaluation as surface treatments for amino- and amide-type polymers (e.g., nylons, casein, acrylonitrile derivatives). Ad-

ditional possibilities exist for these materials in sequestering applications; extraction of high-value metals from their ores; and in the preparation (by precipitation of monomeric organic bases) of unusual mixed organic-inorganic polymers.

- Organomolybdenum compounds, made by a Grignard reaction or by hydrolysis of molybdenum halides with hydroxy compounds, represent virgin research territory. Their properties are unknown, but there's the possibility that they form polymers analogous to the silicones.

- Normal, or simple, molybdates catalyze organic condensations; form (by reduction) strong reducing agents; complex with polyphenols, carbohydrates and dibasic acids; inhibit corrosion of metals; and yield light-sensitive mixtures with organic acids. Possible uses: in corrosion-inhibiting pigments; oxidation, reduction or condensation reagent in synthesis; and surface treatment for cotton, paper and wood.

- Borides, carbides and silicides of molybdenum are refractories. The silicide, in particular, will come in for close study.

WHO'S WHO IN MOLYBDENUM CHEMICALS

Molybdenum ore is taken from the ground as a primary product or a by-product of copper and tungsten ores by:

Kennecott Copper

U.S. Vanadium (division of Union Carbide)

Phelps Dodge

Miami Copper

Climax Molybdenum

Bagdad Copper

Molydenum Corp. of America

The ore (chiefly molybdenum sulfide) is sold in its crude form, as a concentrate, or roasted to molybdic oxide and sold to companies that produce molybdenum chemicals. The most important of these—sodium molybdate, ammonium molybdate and pure molybdic oxide—are made by:

J. T. Baker Chemical

North Metal & Chemical

Molybdenum Corp. of America

Climax Molybdenum Co.

S. W. Shattuck Chemical Co.

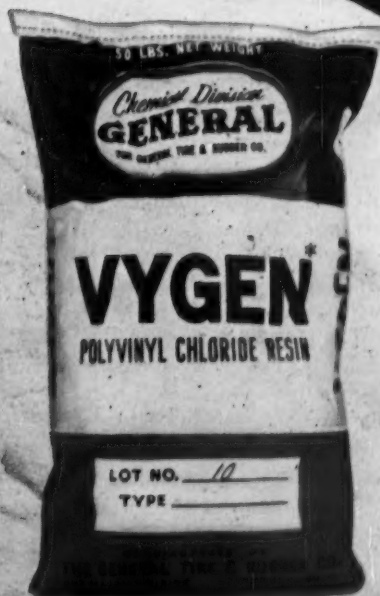
About 14 additional firms synthesize a number of compounds—halides, oxyhalides, sulfides, selenides, carbides, borides, silicides, thiomolybdates, molybdates complex acids, and higher oxides—in limited quantities.

ANOTHER QUALITY CHEMICAL BY GENERAL TIRE

You'll
Be Seeing a
Lot of
VYGEN*

Wherever plastic fabricators work with top quality Vinyl resins, bags of Vygen will become a familiar sight. This is the new resin whose quality is assured by one of the most accurate and thorough systems of instrumentation in the industry.

Vygen belongs where quality is a "must" in fabricating.



*Creating Progress
Through Chemistry*

THE GENERAL TIRE & RUBBER CO.

General Tire also produces . . .

Kure-Blend MT® (Latex-Compounded Masterbatch) • Gen-Flo® (Paint Latex) • Gen-Tac® (Vinyl Pyridine Latex) • Ko-Blend® (Insoluble Sulfur Masterbatch) • Glykon® (Polyester Resin) • Polystop® (GRS Shortstop)

G H Q

CHLORINATED PRODUCTS

- ☆ Chloral
- ☆ 2, 4 Dichlorophenol
- ☆ 2, 4, 5 Trichlorophenol
- ☆ 2, 4, 6 Trichlorophenol
- ☆ Hexachlorobenzene

Make DIAMOND your general headquarters for these chlorinated products. Logistics is no problem. We ship promptly from Newark, N. J.

DIAMOND sales representatives (there's one located near you) will be glad also to discuss production of other chlorinated products on a custom basis: mixtures of tri- and tetrachlorobenzenes, and benzene sulfonyl chlorides, and their chlorinated derivatives.

Orders are followed quickly on carbon tetrachloride, perchlorethylene; methylene chloride; methyl chloride; chloroform; Chlorowax* (chlorinated paraffin); muriatic acid; DDT; BHC, 15% and 40% gamma; Lindane; 2,4-D and 2,4,5-T amine salts; esters and formulations; grain fumigants.

For product information or help on any problem involving chlorinated products, call your DIAMOND representative, or write DIAMOND ALKALI COMPANY, 300 Union Commerce Building, Cleveland 14, Ohio.



**Diamond
Chemicals**

RESEARCH

- Cyanomolybdic acid, which forms insoluble colored salts and soluble light-sensitive salts, is a pigment-former and a potential intermediate for photographic chemicals. Soluble salts will be studied for use in molybdenum electroplating.

- Molybdenum sulfide, the lubricant derivative of the element, exhibits the photoelectric effect and electrical semiconductance. Speculation revolves around its use in rectifiers and as a plate surface for photoelectric cells.

- Permolybdates, strong oxidizers that yield stable yellow salts and explosive red salts, will be studied for use as detonators, industrial oxidants and polymerization initiators.

Spreading the Word: At this stage, all of the above are only educated guesses as to where the rewards are to be found in molybdenum research. In addition to following up these leads in its laboratories, Climax will try, by a technical publicity campaign, to get potential customers interested in molybdenum application studies. To handle its own research, the company recently doubled its Detroit laboratory space, put on six new chemical staffers.

They have their work cut out in attempting to develop a broad spectrum of profitable uses for chemicals that will largely fall into the 75¢-\$2/lb. cost range. Currently available bulk molybdenum compounds, derived from 90% concentrates of the sulfide (\$1.05/lb. of contained Mo) and oxide (\$1.25/lb.), are priced in the 75¢-\$1.50/lb. range. They are made by about five companies (that convert the ore concentrates, or the oxide).

Climax looks upon its exploratory chemical research program as a venture in technical "wildcatting." By contrast, its regular research emphasis—on catalysts, lubricants, colors and agricultural preparations—centers on established molybdenum applications that are more likely to yield reasonably rapid payoffs.

Outside Aid: These current outlets, supplied (directly or indirectly) by Kennecott Copper, U.S. Vanadium (division of Union Carbide), Phelps Dodge and Molybdenum Corp. of America* (in addition to Climax), are believed to offer plenty of incen-

tive for further research. A large portion of this work is carried on in the laboratories of molybdenum users and potential users; the petroleum industry, for example, has shouldered the bulk of the catalyst research effort.

Molybdenum producers, as a group, have not pushed a vigorous program of research on the element. That's largely because molybdenum is a sideline business with nearly all who take it out of the ground. A by-product of copper (or of tungsten, in the case of U.S. Vanadium), molybdenum is relatively small in the activities of such firms as Kennecott and Phelps Dodge.

Climax will, if successful in its chemical development endeavor, uncover new market opportunities for all molybdenum producers. The company, however, is operating on the assumption that, as the only big primary molybdenum producer, it will be the major beneficiary of its own discoveries. Conversely, it has the most to lose when molybdenum business falls off.

And that's an important clue to the firm's enkindled chemical interest. A going trade in chemicals would relieve its almost total dependence on the alloy steel industry. Chemicals have proved appreciably more stable amid business-cycle fluctuations and, as one metals researcher wryly reflects, "with chemicals there's no return of scrap."

• **Better Claw:** The government is looking for chemical companies to evaluate a new chemical finish for glass fibers used in reinforced plastics. Object: to get the compound into production. Sparking this search is the condensation product of resorcinol and allyltrichlorosilane, found by Naval Ordnance Laboratory researchers to be a "universal"-type glass-to-resin bonding agent.

According to NOL, the substance "is an excellent finish with epoxy and phenolic resins," effective with polyesters. Commercially available finishes, on the other hand, are useful primarily with unsaturated polyesters, although some have proved successful with other resins, as well.

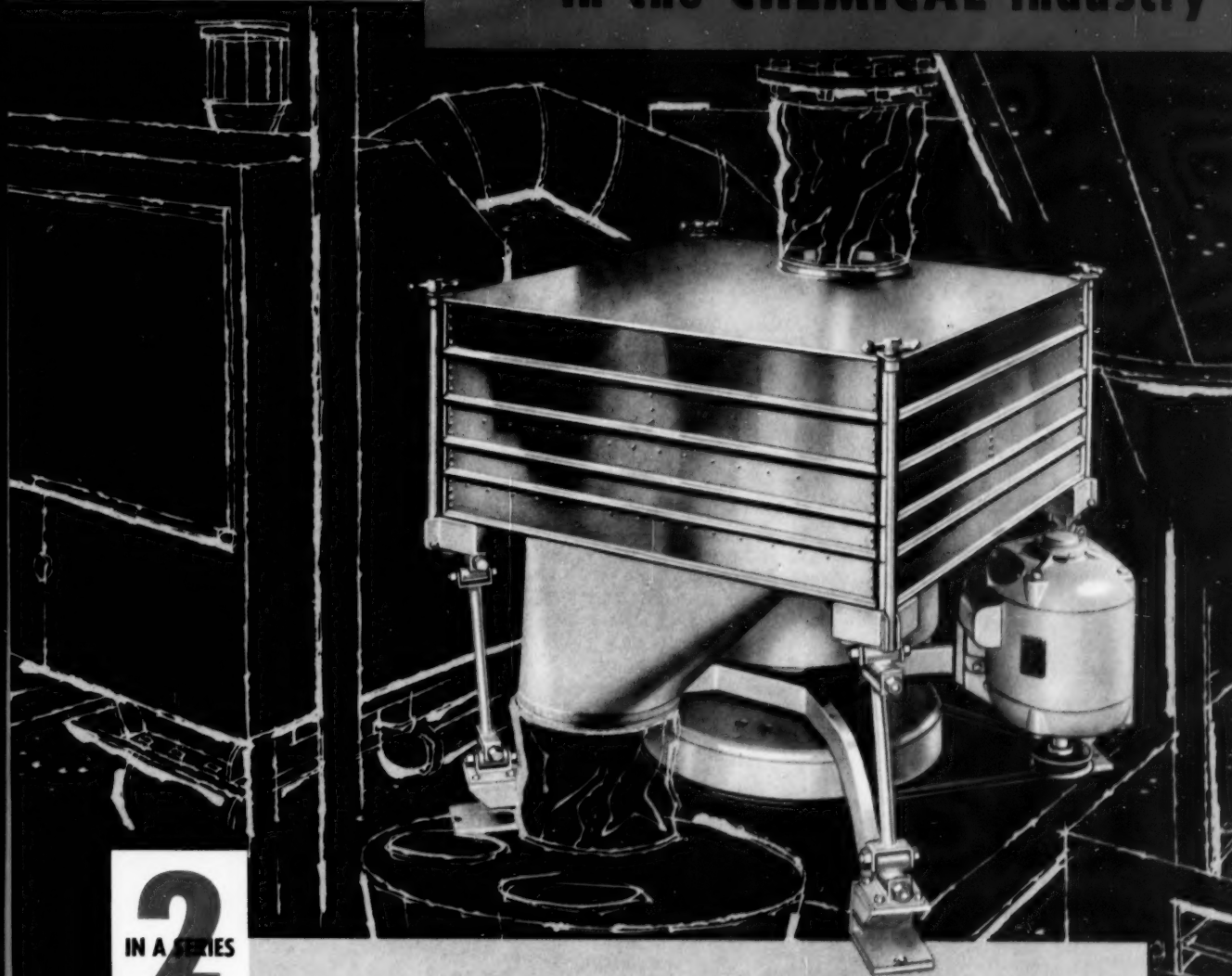
A feather in the cap of NOL's chemists, the versatile finish was designed to embody a different functional group, or chemical claw, cap-

*Other molybdenum miners: Miami Copper and Bagdad Copper.

ALLIS-CHALMERS
INTEGRATED
EQUIPMENT
FOR

Light PROCESSING

in the CHEMICAL industry



2
IN A SERIES

The quality, production and efficiency demands which go with the tremendous growth of the progressive chemical industry present a constant challenge to equipment and methods. Allis-Chalmers, in cooperation with the chemical in-

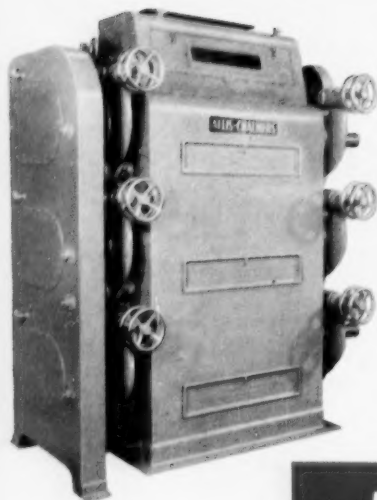
dustry, has met this challenge by developing an integrated line of processing machinery coordinated with required electrical equipment . . . machinery and equipment from a single source — designed to work together

A-4641

AC
ALLIS-CHALMERS

MILLING

upgrade your

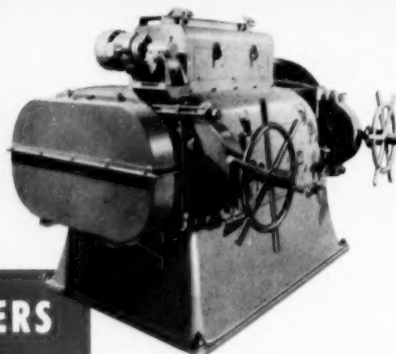


Multiple-stage mills are used when no separation is necessary between reductions. Where screening is required between milling stages, AirSet or Allis-Chalmers straight-line mills are recommended.

MILL

The Style N three-stage roller mill, used for fine granulation, increases yield by minimizing fines. Each progressively finer grinding is extremely gentle. There is no excessive shattering . . . no size-destroying impact. Granulations of the entire output are uniform — ready for further processing. The Style N line also includes mills with one and two pair of rollers. Applications depend upon the degree of fineness desired. Style N mills are of the single-flow type. Available with rolls of 9 and 10-inch diameters in 18 to 42-inch lengths.

Heavy duty mill available with 20-inch diameter rolls in 24 and 42-inch lengths; 32-inch diameter, 40-inch length. Smaller Style Q flaker has 15 by 30-inch rolls.

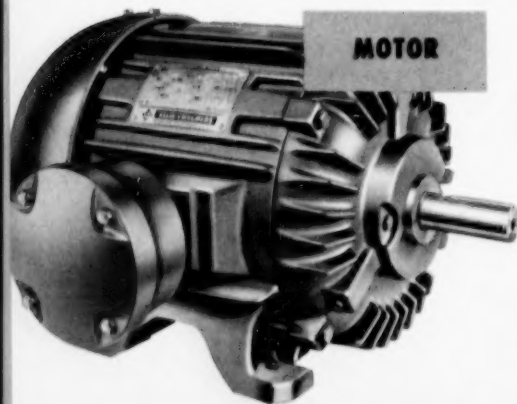


FLAKERS

Allis-Chalmers flaking mills are used to flatten dry or conditioned material into broad flakes — to increase density, improve combustion, as a compounding method, and in *pre-mill flaking* as an aid to subsequent processing.

Pre-mill flaking simplifies and speeds impact milling or grinding. The principle is basic . . . flakes shatter more readily than other forms. In impact milling, doubled, tripled, even quadrupled capacities have been credited to pre-mill flaking with the Allis-Chalmers flaker.

Coordinated



MOTOR

Allis-Chalmers totally-enclosed, fan-cooled, explosion-proof motors are especially suited to conditions in the chemical industry. Frames are rigid cast iron, which is naturally corrosion resistant. Rib-type design provides ample reserve cooling capacity in dirty locations . . . no inaccessible air passages. All radiation surfaces are exposed for easy cleaning by cloth, air hose or vacuum.

The improved bearing design keeps maintenance cost low. Large grease reservoirs surround double-shielded bearings. Provision is made for in-service re-lubrication if required — an important factor where

corrosive vapors contaminate grease. Bearings are protected against foreign matter by a multiple labyrinth seal . . . a slinger on the outside of the bearing cap and a multiple-groove labyrinth between bearing cap and shaft. Another labyrinth seal on the inner bearing cap keeps grease from entering interior.

Allis-Chalmers fin-type, totally-enclosed, fan-cooled motors are made in the complete range of NEMA sizes. Frame sizes are being converted to the new NEMA standards. Larger motors are available in the tube-type design with similar maintenance saving features.

ALLIS-

MATES

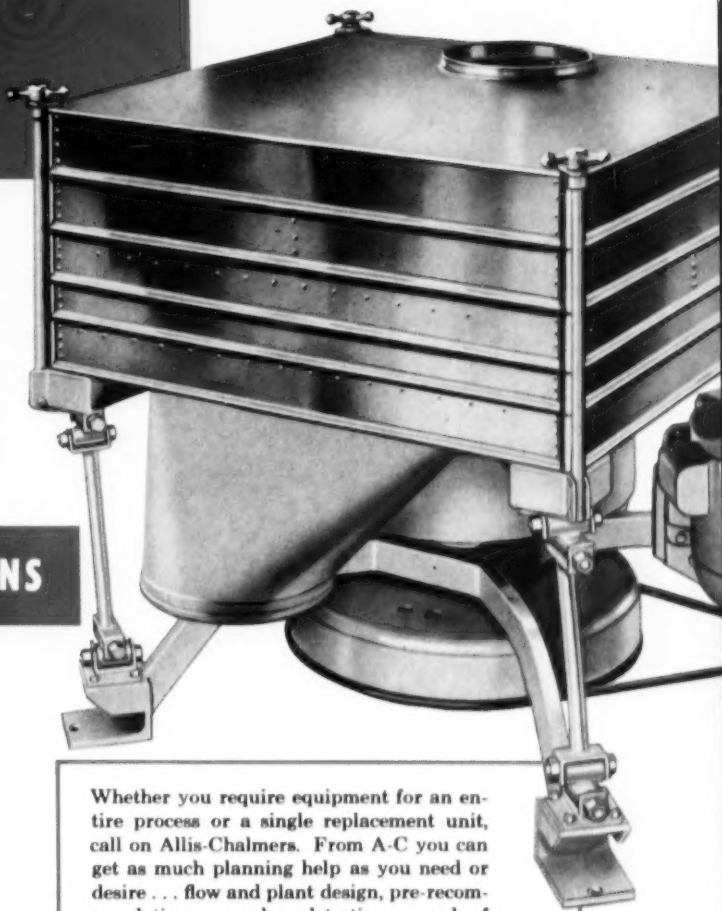
r products

The all-metal gyratory *Circle* sifter is designed to separate dry granular products into two, three or four predetermined sizes. Units are available with from three to seven decks to meet varying capacity and separation requirements. Either silk or metal screen cloths of 2 to 325 mesh may be used. A single inlet facilitates feeding from hopper or conveyor. The number of separations dictate the number of outlets.

Space conservation is accomplished by the stacked deck design of the *Circle* sifter. As much as 35 square feet of screening area is provided in only 9 square feet of floor space . . . one-fourth the space required by a single-deck unit with equal screening area. Installation entails no structural reinforcing. Dynamic balance makes the gyratory motion smooth and vibrationless. High capacity-to-screen-area ratio, quick product changeover and simplified sanitation are additional *Circle* sifter advantages.

Other compact A-C screens for light processing include the *Low-Head* sifter, available with balata, rubber and stainless steel liners, and the large capacity free-swinging sifter with a maximum of 453.6 square feet of screening area.

SCREENS

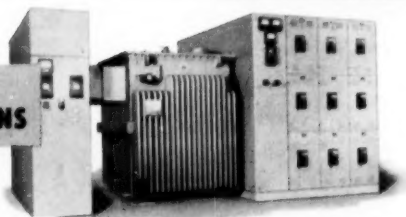


Whether you require equipment for an entire process or a single replacement unit, call on Allis-Chalmers. From A-C you can get as much planning help as you need or desire . . . flow and plant design, pre-recommendation research and testing — and, of course, expert installation and service.

AirSet, Circle and Low-Head are Allis-Chalmers trademarks.

with the required
electrical equipment

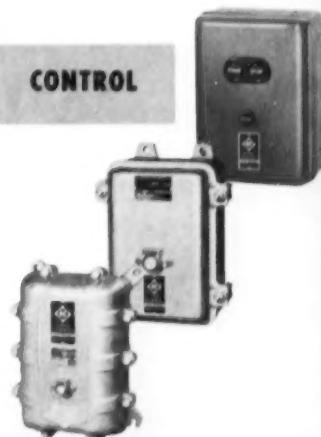
UNIT SUBSTATIONS



Unit substations are available in combinations of switchgear and transformer elements to meet any requirement. Compact and flexible, these units can be strategically located near load centers. High voltages are brought in with a minimum power loss over comparatively inexpensive small cable. Because secondary runs of heavy cable are short, voltage drop is reduced. With voltages efficiently regulated at the point of use, motor performance is improved . . . lights are brighter, steadier. Unit substations have no exposed live parts. Personnel are completely protected.

CONTROL

Allis-Chalmers offers an extensive line of manual and magnetic starters to meet every condition of motor operation. Starter functions, varying with specific job requirements, include full or reduced voltage starting, acceleration, speed control, reversing or non-reversing and dynamic braking. Built into every starter is the type and degree of protection dictated by the application. Starters are available in general purpose and special cabinets, including water-tight, dust-tight and explosion-proof enclosures.



CHALMERS



COOPERATIVE ENGINEERING

Your A-C representative is an application specialist — ready and able to work with your staff or your consulting engineers to solve your processing problems. His recommendations are backed by Allis-Chalmers engineering departments . . . by complete research, testing and pilot plant facilities . . . by experience gained in solving thousands of equipment coordination problems. Each processing problem is given personal, expert attention. Engineers and technicians examine and evaluate your process to make *existing* as well as *new* equipment as productive and economical as possible.

UNBIASED RECOMMENDATIONS

Because A-C builds many types and sizes in a given equipment line, recommendations are completely unbiased . . . dictated only by your specific needs.

Most important is the fact that Allis-Chalmers interest in your problem is continuous. Laboratory services, periodic equipment check-up, emergency parts service are yours for the life of the equipment.

ALLIS-CHALMERS

builds the following types of integrated equipment:



HEAVY

Crushers • Grinding Mills • Screens

LIGHT

Flaking Mills • Roller Mills • Screens

PYRO-PROCESSING

Furnaces • Kilns • Coolers • Dryers

POWER

Generators • Condensers • Pumps • Transformers • Switchgear
Substations • Motors • V-Belt Drive • Control • Rectifiers

LIQUID HANDLING

A complete line of Centrifugal Pumps

AIR AND GAS HANDLING

Centrifugal Blowers • Axial Compressors • Rotary Compressors

Allis-Chalmers also makes equipment for solvent extraction, electronic heating, metal detection, and inter-floor conveying.

Allis-Chalmers
1150 S. 70th Street
Milwaukee 1, Wisconsin

(Explanation of process or problem)

Send me the following bulletins:

☐ 25C6177, "A-C Equipment for the Process Industries."

☐ I would also like bulletins on _____
type of equipment

A-4641

WRITE FOR LITERATURE

A 28-page insert, "Allis-Chalmers Equipment for the Process Industries," may be found in the Chemical Engineering Catalog. This insert is available in bulletin form (25C6177). Individual bulletins covering specific equipment lines also are yours for the asking.

Name.....

Title..... Company.....

Address.....

City..... Zone..... State.....

RESEARCH

able of getting a firm grip on at least three different types of resin. Other interesting offshoots of this effort include reaction products of allyltrichlorosilane and 3,5-xyleneol; phenol; *m*-cresol. A resorcinol-vinyltrichlorosilane condensate also was evaluated.

All of the substituted allyltrichlorosilanes reportedly proved superior to commercial finishes in tests on epoxies and phenolics. But industrial interest will be dampened by the standard non-exclusive licensing arrangement covering the chemicals.

Kobuta Comer: Newly revealed by Koppers (Pittsburgh) are plans for a three-building, U-shaped laboratory at its recently opened Kobuta, Pa., development plant. The lab will handle short-range projects related to sales and competition problems.

Poison Oak Nemesis: According to newly reported work by University of California botanist Olive Leonard, aminotriazole is effective as a herbicide for poison oak and sandbar willow. It reportedly is more selective than presently used poison oak killers (e.g., 2,4-D, 2,4,5-T, and oil sprays), less dangerous to ornamental shrubs.

Molecular Filter: High-speed filtration (up to 250 ml./hour) is claimed for a new laboratory filter available from Emil Greiner Co. (New York). Key to its speed is high pressure (up to 100 psig.), and an extremely thin (.0015 inch) cellulosic filtration membrane (in the form of a long tube).

Leather Report: A recent Army Quartermaster Corps report (Order PB 111540 from OTS, U.S. Dept. of Commerce, Washington 25, D.C.) describes a new emulsion process of combining plastics with leather. Resultant products are said to have 10-15 times the water resistance of grease-treated leathers, excellent appearance, hand, durability, and resistance to aging. Price: \$8.75.

Debut: Monsanto's plastic division is offering a new series of modified polystyrenes that are soluble in water but insoluble in most organics. Tagged Lustrex 710 and 770, the new materials are derived from polystyrenes possessing molecular weights of 10,000 and 70,000, respectively. Potential applications: tackifiers, thick-



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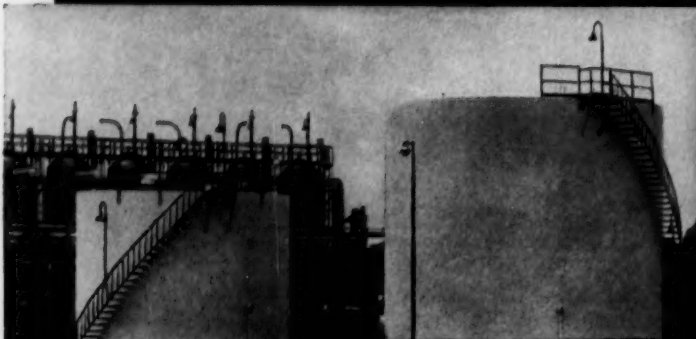
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of tanks to keep a
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in business

● Big ones, little ones, carbon steel tanks, corrosion-resistant tanks—it takes all kinds to operate a chemical plant. And CB&I is equipped to build them all.

Among our recent installations for the chemical industry are the two storage tanks shown in the above foreground—a 5,000-bbl. and a 1,500-bbl. cone roof tank—built for the National Petro Chemical Corporation at Tuscola, Illinois. The tanks are not dramatic in appearance, but behind them is the CB&I story of experience, engineering know-how and proper facilities to build welded steel structures to the most exacting specifications.

When your operations call for new tanks, pressure vessels, or any type of special steel plate work, write to the nearest CB&I office for information, estimates or quotations.

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RESEARCH

eners and flocculants in aqueous systems. Monsanto thinks they should be useful in water-based adhesive and paper-coating formulations. Samples (403.) are available for evaluation.

Diet Rule: A significant advance in the science of animal diet supplementation was unveiled at this week's meeting of the American Societies for Experimental Biology in San Francisco. Researcher J. T. Baldini of Du Pont's Stine Laboratory (Newark, Del.) reported that he and co-worker H. R. Rosenberg had discovered a method of using the calorie content of a poultry ration to calculate the optimum amount of methionine needed to supplement the ration.

One dividend of their work is the discovery that the methionine requirement of a ration increases with increasing calorie content. The trend in poultry feeding is to higher-energy diets. By permitting nutritionists to predict the growth response of proposed high-calorie, methionine-con-



WIDE WORLD

California Creation

HARDLY a new idea in hats, the transparent plastic helmet shown here is playing a part in Stanford Research Institute smog studies. Investigator Leon DeMerre is pumping the helmet full of smog as the first step in determining the precise effects on humans of noxious atmospheric constituents.

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59% Formaldehyde—26% Urea
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Makes costs go down.
Increase kettle charge.
Decrease cycle time.
Pay no more than for
less concentrated forms.



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Bulk liquid products stored at HESS are under the constant supervision of a highly trained team of experts.

The modern HESS storage terminals, conveniently located in the New York Harbor and Gulf Coast areas, are operated by specialists in handling bulk liquid materials of all kinds. They have the know-how to assure the absolute protection and privacy your products need.

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RESEARCH

taining rations, the new method will bypass much costly trial-and-error research.

"Practical applications . . ." Du Pont avers, "have been established on a preliminary basis . . . under commercial broiler-raising conditions."

Idea Search: Rocket materials are not the only targets for resourceful chemical researchers (CW, March 26, p. 48) in the defense program. To spark inventive effort, cut the time lag between conception and evaluation, Air Research & Development Command last week created the post of Assistant for Innovations in the Analysis and Evaluation Office. The job's first occupant, Lt. Col. M. W. Beardsley, is the man to contact on proposals—chemical and others. Concurrent with filling the new job, ARDC broadcast a plea to industry, universities and individuals for new technological ideas.

Solids Lab: Growing importance of solid-state physics to industry is reflected in National Carbon Co.'s (division of Union Carbide and Carbon) latest expansion. The company broke ground in Parma, O., a suburb of Cleveland, last week, for new laboratories to shelter solid-state investigations on graphite and other materials of interest in this field. Semiconductor studies, one phase of solid-state physics, paved the way for the development of commercial transistors.

Heading the new research program will be Robert Breckenridge, formerly chief of solid-state physics at the National Bureau of Standards. The building under construction will provide 175,000 sq. ft. of floor space, accommodate a staff of 200 researchers. Cost: unspecified but stated to be "several millions."

Ageing Key: What causes ageing in humans? A hint at the answer to this venerable question comes from chemists of Bjorksten Research Laboratories (Madison, Wis.) who reportedly have found strong indications that it's due to "the progressive immobilization of protein molecules by . . . cross-linking or other process." These proteins, they hypothesize, are withdrawn from metabolism and choke living cells. Bjorksten postulates that the process could be reversed by a chemical agent that would "remobilize" aged proteins.



How "Dutch Boy" Chemicals help the cosmetic industry make its products more appealing

Repeat cosmetic sales depend largely on formulation.

Think what hard settling of suspended solids would do to a liquid make-up, for example . . . or phase separation to a hand lotion or cold cream. National Lead Company has done a great deal of thinking about this kind of problem.

And the result of this thinking, this research, is Ben-A-Gel*. Ben-A-Gel is a new Dutch Boy wonder gellant that does amazing things for water (or oil-and-water) dispersions, emulsions, suspensions and mixtures. By its unusual thickening action it gives lotions, creams, and shampoos a truly luxurious "feel." It prevents hard settling, stabilizes emulsions, reduces heat thinning or separation. And because it's inorganic, not subject to micro-biological degradation, it helps keep products sweet and fresh.

Bentone* 34, another Dutch Boy Gelling Agent, does equally beneficial things for lipsticks, cold creams, make-up bases and other water-in-oil emulsion products . . . improving body, providing temperature independence.

Well worth looking into! Maybe you'd like to explore the effects of Dutch Boy Gelling Agents in cosmetics, pharmaceuticals, paints, insecticides, cleaners, greases, adhesives, and other organic systems. Even ceramics.

Or perhaps you would like to know more about National Lead's newest developments in vinyl stabilizers . . . or Dutch Boy's new double-duty plasticizers that give a unique combination of low volatility and low temperature flexibility. Just fill out the coupon.

*Reg. U. S. Pat. Off.

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*Please send me the latest information concerning
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"But isn't the color supposed to be washed?"

She puts your reputation on the line.

Using fine dyes, the color and washability of your fabrics are made sure. All the washable goods you buy are dyed with VAT DYES—dyes that will pass the famous laundry test. Vat dyes have been established in household laundries.

Du Pont

1. The washing machine is the best place for vat dyes.

2. The ironing board is the best place for vat dyes.

Fading a recurring headache for drapery departments. 80.6% of retailers report*

Don't let her find you asleep at the switch!

When she buys, she has another color reputation to uphold. Make sure the colors will washable colors. You buy the right vat dyes. VAT DYES—dyes that will pass the famous laundry test. Vat dyes have been established in household laundries.

Du Pont

about Vat-Colored draperies?

1. It is the best way to keep your draperies looking like new. 2. It is the best way to keep your draperies looking like new. 3. It is the best way to keep your draperies looking like new.

Fading colors plague 80.6%* of nation's retailers

She could put the heat on you...

If you sold her cottons and washables, you'd better have a few handkerchiefs! So play it safe. Be sure the colors and washability report you carry are dyed with VAT DYES—dyes that pass the famous laundry test.

Du Pont

Mamma knows best... and buys it!

BARRAGE: In retail trade papers, dyestuff firms urge soft goods buyers to specify vat-dyed merchandise.

Retailer Ads Spark Vat Dye Sales

Unexplored sales potential, widespread consumer ignorance about vat dyes, an odd sales picture—that's behind the big vat dye promotion campaign now being carried by dye manufacturers to soft goods buyers in department, chain and independent retail stores across the country. In full-page ads and direct mail, the drive is on. American Cyanamid asks the retailer: "How fast are fast colors?", urges him to specify vat-dyed goods and then to identify them as such to the woman shopper. Du Pont warns the retailer that "she could put the heat on you" if cottons and washable rayons aren't colorfast.

Actually, vat dye promotion to retailers isn't new. Du Pont has been at it for some years. But with the con-

sumers' spending splurge after the war and the federal government's during the Korean War, vat colors didn't need much pushing. Now it's different.

• The general textile fall-off has produced a drop in demand for quality goods, has influenced to some extent a price drop for quality dyes. One remedy for the trade's ills, Cyanamid feels, is emphasis on upgrading. Although most industries have adopted upgrading to boost sales, textiles have yet fully to do so. Upgrading textiles (by improved colors) will aid the industry, Cyanamid points out, and open a large "quality" market for vats.

• With the war-generated easy selling times of recent years, interest in vat color education lagged. Result: a whole new generation ignorant of

extensive capabilities of vat color.

• Vat color sales have been declining despite increased production. Vat competitors, however, have not slipped as much. While the price drop (caused by many factors) is probably most significant, improvements in other colors and demand for goods unsuitable for vat coloring have played a part.

Add these considerations together and you have the impetus for the vat dye push.

This year, Cyanamid's Dyestuff Dept. launched its first, large-scale retail vat dye promotion. Arnold Hoffman will soon initiate a sizable vat program and Ciba is seriously considering one. Other firms, too (with varying degrees of enthusiasm, however)

BECCO H_2O_2

Organic Oxidation with H_2O_2 is an accepted production method

Hydrogen peroxide has infinite possibilities in organic oxidation reactions and is playing its part in the production line of many manufacturers. It is being used in the commercial manufacture of many epoxy compounds including plasticizers and selective insecticides, and in the production of pharmaceuticals such as cortisone, anti-histamines and others.

Becco technical consultants—in the field or at our laboratories in Buffalo—are thoroughly familiar with safe and effective methods for using this versatile reagent. You are invited to make use of Becco's modern laboratories, large technical staff, and unparalleled experience in the manufacture and application of hydrogen peroxide. Write for special bulletins on epoxidation and hydroxylation or for Becco's complete list of bulletins on the use of Peroxygen chemicals.

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FOOD MACHINERY AND CHEMICAL CORPORATION



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new idea mart

from the EMULSOL lab

A thought or two about things new
and interesting in the field of
surface-active chemistry . . .



foam on the range...

The hottest thing in flexible
plastic foams of the poly-
urethane type is the fool-
proof coupling agent
EMCOL H-77. Ask the ex-
perts—and they will always
refer you to us.



dry clean with care...

Doing a gentle job in dry
cleaning touchy woolsens
and other fine textiles is
easy . . . when EMCOL
5138A is used. The fresher
appearance of the garment
is possible when this gentle
but versatile solvent-emul-
sifier is used in the advanced
dry cleaning plant.



bubble trouble

won't bese the fellow who
formulates his bubble bath
product with EMCOL 4150.
Whether he appeals to ladies
of luxury or small fry, he'll
be able to boast the spongi-
est, most voluminous, long-
est-lived bubbles ever bot-
tled. And among its added
attributes, the elimination of
bathtub 'ring' and the
absence of powders are not
to be sneezed at.

YOUR PROBLEM IS NEXT...

If you've a production headache that
might respond to the proper surfactant,
sit down and give us the details on your
letterhead. We may have the answer
sitting "in stock" . . . or perhaps we'll
be able to invent it for you. Write
Department CW.

EMULSOL
CHEMICAL CORPORATION
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DISTRIBUTION

are joining the sales drive.

Representative of the compre-
hensive-type vat advertising program is
Cyanamid's. Here, leaving no in-
fluence unsolicited, the company plans
promotion to consumers, retailers, re-
tail sales help, youth and the textile
trade (converters, mills, dyers, gar-
ment manufacturers, etc.). This is how
Cyanamid hopes to hike its vat dye
sales, encourage textile upgrading:

- By consumer demand. Literature
will be offered for distribution in re-
tail stores stressing the washfast and
lightfast properties of vat-dyed goods.
The company will also assist authors
in the preparation of articles for na-
tional magazines.

- By retailer demand. This is one
of the key phases. Full-page ads and
spreads (50 this year alone) in retail
trade journals* and direct mail will
urge buyers to insist on vat-dyed goods
to eliminate returns on account of
poor colorfastness. As part of this
activity, the company recently polled
some 30,000 retailers to determine the
extent of colorfastness problems, found
that 83% of the responding buyers
and merchandise managers had color
returns; that the problem was most
acute in curtains, draperies, up-
holstery, dresses and sportswear; that
the most frequent question asked by
consumers was, "Will it fade?"; that
retailers want vat-dyed goods so
labeled; and that an intensive vat dye
promotional campaign to the trade and
the consumer would be beneficial.
The results are now being prominently
featured in the advertising, and direct
mail, too.

- By educating retail sales help.
This will be accomplished both by
store executives who respond to the
promotional campaign and by special
literature oriented to salesclerks.

- By educating youth. Advertise-
ments in the *Forecast for Home
Economist* will urge home economics
teachers to send away for literature on
vat dyes for distribution as high school
class source material.

- By promoting the textile trade.
Converters, garment makers, cutters,
and others will receive reprints of vat
dye ads; salesmen will stress survey
results in personal calls, will en-
courage tagging of vat-dyed goods.

Promotion Obstacles: Serious, com-

prehensive, and costly though the vat
dye programs of some companies are,
the promotional campaigns face a stiff
fight. There are many factors that
would seem to militate against success
in vat dye education:

- Cost. Sooner or later any vat dye
program that is to be successful must
include heavy consumer education.
Retailers may or may not help out.
Consumer advertising is extremely
costly. And you don't educate con-
sumers overnight; vat promotion could
take five years. Figure, too, the sizable
expense of the industry-level advertis-
ing. Additionally, the cost and time
could discourage the effort before the
job is done.

- Feasibility. Vat dyes aren't
needed and aren't practical for some
applications. Too, many a cutter cater-
ing to a particular price line would be
unable to "hold the line" if forced to
use vat dyes. "Impossible" requests
could create serious ill will for the
dyestuff producer at the trade level.
(Cognizant of this, Cyanamid points
out in some of its ads that it isn't re-
commending vats for everything.)

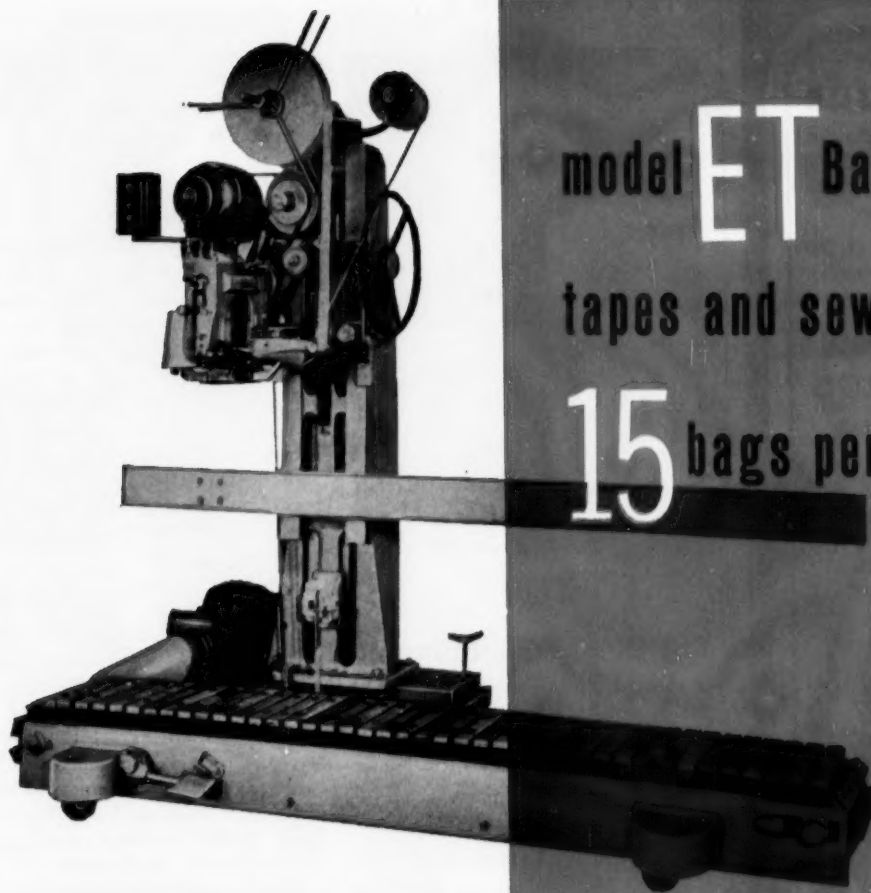
- Overselling. In any advertising
campaign, the danger of "overdoing
it" always exists. Consumers could be
educated to expect too much from
vats; resultant disappointment could
injure demand. This could be inten-
sified by fraudulent labeling practices.

With such strong deterrents to
promotion achievement, it's not sur-
prising that some firms plan only
modest programs. National Aniline
will run a series of 13 ads in one retail
trade journal to point up vat dye
trends to soft goods buyers. The com-
pany, however, will only gently stress
vat dye specification and identifica-
tion, won't urge retailers to pressure
converters and mills. General Dyestuff
intends a limited program, will center
the bulk of its promotion (as it normal-
ly does) on the textile trade.

Although the new vat dye drive is
only a few months old, there are signs
that indicate some success. Some cut-
ters and garment makers are beginning
to advertise their products as vat-
dyed. But the educational task is still
tremendous.

Explosives Mishandling Fined: Im-
proper placement of explosives-laden
freight cars on a Texas & Pacific RR
train resulted in a \$5,000 fine for the
railroad in the Texas Federal Court.

* *Women's Wear Daily*, *Daily News Record*,
Retailing Daily, *Department Store Economist*,
Merchants Trade Journal.



model **ET** Bagpaker®

tapes and sews

15 bags per minute

**TAKE ADVANTAGE OF THESE 5
MODEL ET BAGPAKER FEATURES:**

- One operator finishes 15 bags a minute when filled bags are delivered continuously to the conveyor
- Adjusts to bags from 25 to 100 lb. capacity
- Caster-mounted, the Model ET is easily moved to widely separated packaging stations
- Bag starts and stops sewing head when equipped with automatic sewing head control
- Automatic brake on Hoepner No. 150 Heavy Duty sewing unit prevents "coasting"

Here's the perfect teammate for your present filling and weighing equipment—the most efficient way to get better protection and faster packaging at the lowest possible cost.

Here's how the Model ET Bagpaker works: One operator receives bags from your weighing and filling machine. In four seconds or less the Bagpaker has applied creped "kraft" sealing tape over the bag end, sewn a reinforced "cushion stitch" through both tape and bag, and trimmed the tape. You can't beat that for efficiency and speed.

Booklet ET gives you complete details and dimensional drawings, shows you how perfectly Model ET fits into your existing filling set-up. There's no obligation—just write to: K-16

International Paper Company, Bagpak Division
220 E. 42 Street, New York 17



International Paper COMPANY
BAGPAK DIVISION

BRANCH OFFICES: Atlanta • Baltimore • Boston • Chicago • Cincinnati • Cleveland • Dallas • Denver • Des Moines • Detroit • Joplin • Kansas City, Kansas • Los Angeles
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DISTRIBUTION



FROM EUROPE, a new kind of aluminum bottle . . .

For Costly Chemicals

Modern in appearance and functional design—with built-in safety features reminiscent of the strongboxes of the buccaneers—are the new German-made aluminum bottles recently placed on the market by Basic Material Supply Co. (New York).

Aluminum bottles as such are not, of course, new, but the imported containers boast some novel features:

- A wide mouth to facilitate filling with solids as well as liquids—and incidentally to simplify cleaning operations. (Steep shoulders also aid cleaning because brushes can easily reach all parts of the interior surface.)
- Seamless construction to minimize corrosion problems and strengthen the bottle.
- A heavy cast-aluminum collar around the neck to eliminate interior seams and thread ridges. The smooth surface permits easy pouring of the contents, e.g., when handling thick liquids or semisolids.
- Perforated flanges on the cap and bottle to allow tamperproof wire sealing—useful when valuable materials are packed for export.

In common with all other types of aluminum containers, the bottle is, of course, rust-free, essentially unbreakable, and lightweight. Sizes range from half a pint to 15 gal.

Main market that Basic Material envisions for these not-inexpensive bottles: shipment of pharmaceuticals, essential oils, and other products of relatively high unit value, or materials

that cannot safely be handled in breakable containers—in general, "chemical bullion" that will not react with 99.5% aluminum.

Truck Trends

Sweet but tinged with bitters is the taste of recent truck news of interest to chemical sales and traffic managers. The good news emanates from the reported cessation of hostilities between the railroads and the Pennsylvania Motor Truck Assn., and the reluctance of state legislatures to pass severe weight restrictions on truck explosives cartage. Bad news, however, looms for firms shipping through the Middle Atlantic States: truck rates are going up 15%.

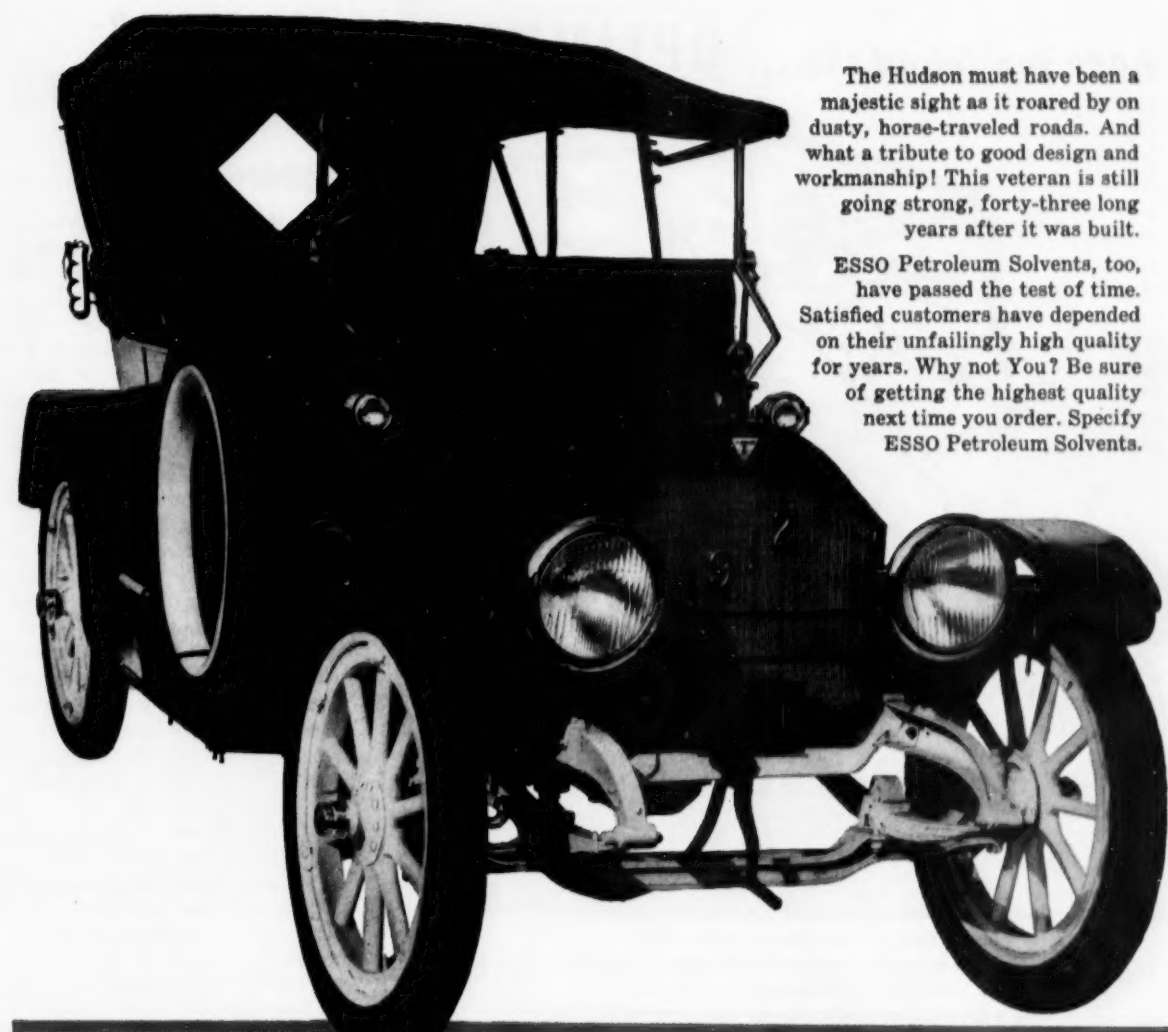
Top transportation executives have disclosed that the PMTA and independent truckers will drop their \$250-million damage suit against Eastern railroads and their public relations counsel, Carl Byoir & Associates. In return, the railroads' lobby in Pennsylvania's capital, Harrisburg, will halt its activities against attempts to liberalize state trucking laws. The railroads' public relations campaign is also reported to be dropped.

Easier Laws? Significance for the chemical industry: this development could well lead to more liberal Pennsylvania truck-weight laws, now among the most restrictive in the U.S. The state figures strategically in the Eastern chemical transportation complex.

Also on the cheery side is the word from state legislatures in Nebraska and North Carolina. Lawmakers in both states have sidetracked statutes that would limit truck shipments of explosives to 5000 lbs.

Not so bright news, however, is the proposed rate increase for truckers in the Middle Atlantic States. The Middle Atlantic Trucking Conference, which is petitioning the ICC for the increase (to 15%), claims that wage and other cost increases necessitate the boost. But a sizable group of truckers is opposed, feels it may throw business to competing transport facilities. The higher tariff is being contested by various groups, including the Manufacturing Chemists' Assn., Eastern Industrial Traffic League, and large paint manufacturers.

If the new rates go through, as they likely will, chemical traffic men



The Hudson must have been a majestic sight as it roared by on dusty, horse-traveled roads. And what a tribute to good design and workmanship! This veteran is still going strong, forty-three long years after it was built.

ESSO Petroleum Solvents, too, have passed the test of time. Satisfied customers have depended on their unfailingly high quality for years. Why not You? Be sure of getting the highest quality next time you order. Specify ESSO Petroleum Solvents.

PROVED PERFORMER

YOU CAN DEPEND ON ESSO SOLVENTS FOR

- **MULTI-STORAGE AVAILABILITY** — water terminals in industrial centers.
- **MODERN HANDLING METHODS** — separate tank storage, pumping lines, tank cars and trucks are used in all handling operations. Prompt delivery to your door is assured.
- **CONTROLLED EVAPORATION** — available in a wide range of evaporation rates with precise characteristics to meet your requirements.
- **SOLVENCY** — Esso aliphatics and Solvesso aromatics cover both high and low solvency ranges.
- **FOR TECHNICAL ASSISTANCE** — If you have a solvents problem or want further information on the specifications and characteristics of Esso Solvents — write or call our office nearest you. Our technicians will be glad to assist you.



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SOLD IN: Me., N. H., Vt., Mass., E. I., Conn., N. Y., N. J., Pa., Del., Md., D. C., Va., W. Va., N. C., S. C., Tenn., Ark., La.
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OPTIMUM DIBASIC ACID?



investigate **EMEROX[®]** Azelaic Acid

Versus sebacic... For example, in butyl esters for plasticizers, and in dioctyl esters both for plasticizers and synthetic lubricants, these dibasic acids are interchangeable. Yet azelaic has a decided cost advantage with equivalent end-product efficiency and performance.

Versus adipic... Emerox Azelaic Acid produces products with definitely different characteristics. This is exemplified by diesters for plasticizers in which the azelates provide superior low-temperature flexibility and lower volatility. Also, because of its odd carbon structure and longer chain length, azelaic acid imparts unusual properties to resins and polyesters.

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Please send technical literature on Emerox
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Name.....Title.....

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DISTRIBUTION.....

will start re-evaluating shipping methods. Increased use of "piggybacking" may be one result.

Snipping Red Tape

Federal red tape is one problem the chemical industries will most likely always have, but now and then respites do occur. Most recent: the Interstate Commerce Commission's decision to let chemical companies in the Erie-Buffalo-Niagara area of New York tank-truck chemicals away from their plants.

Prior to this decision, firms in the area (Carbide and Carbon Chemicals, Hooker Electrochemical, National Aniline, and Olin Mathieson) were limited to rail shipment in bulk or truck shipment in 55-gal. drums. Under the terms of the ruling, Chemical Tank Lines, Inc. (Downingtown, Pa.) can now tote bulk liquid chemicals between Erie and Niagara Counties and points in Ohio, Pennsylvania, Illinois, Indiana, Michigan, Delaware, Maryland, Virginia, North Carolina, West Virginia, New Jersey, Kentucky and Tennessee.

In arguing its case, Chemical Tank Lines obtained strong support from most chemical firms in the area. Tank-truck service, the supporting companies asserted, proffered these advantages:

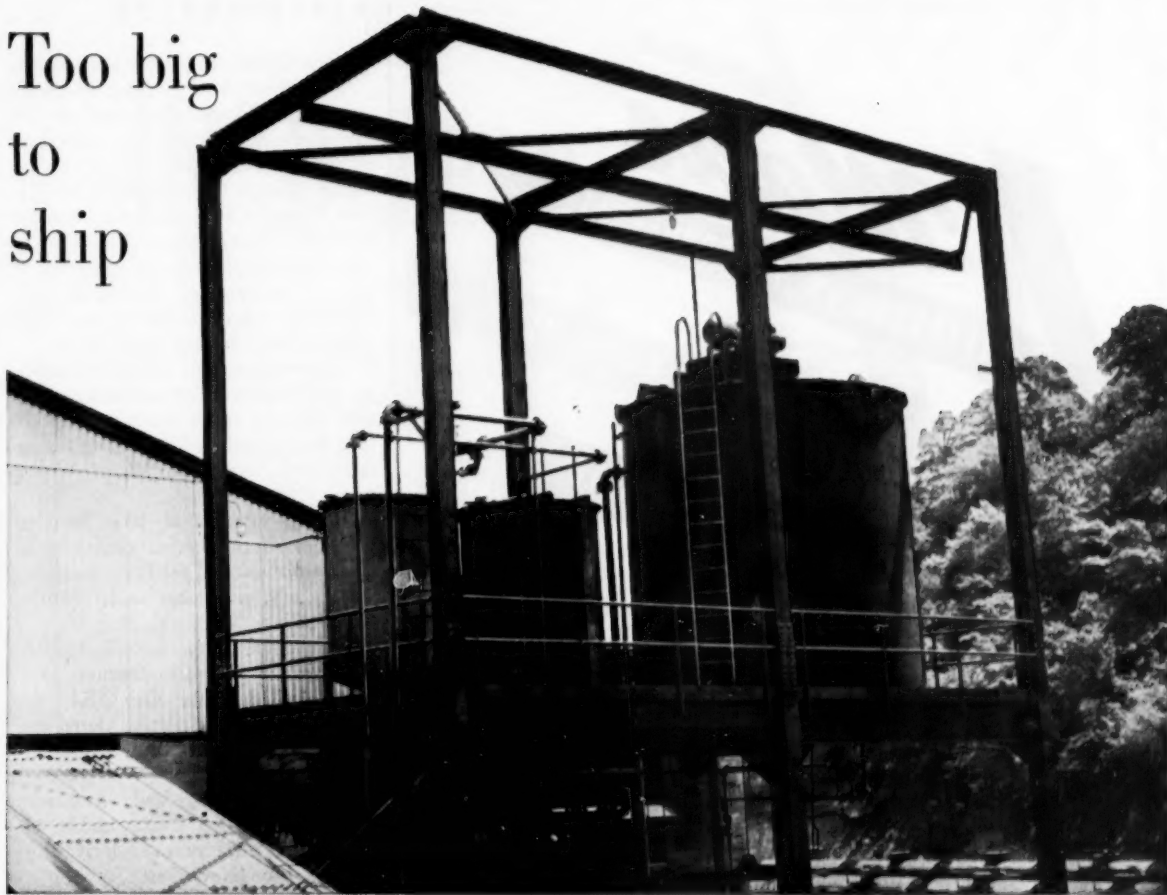
- Permits stops in transit to unload small quantities.
- Allows flammable materials to be transported to small plants without private rail sidings.
- Eliminates the cost and handling of drums.
- Provides supplementary and emergency service.

Opposition to the request stemmed chiefly from competing haulers—Mutrie Motor Transportation, Inc., Rogers Cartage Co., Producers Transport, Inc.—and various railroads. Although unsuccessful in urging maintenance of restrictions on outbound shipments, opponents were pleased to see most of the requested liberalizations on inbound shipments denied.

For Tomorrow's Reference: Among latest publications:

- Surfactants—40-p. catalog describes sequestrants, dyeing assistants, brighteners, and various grades of carbonyl iron powder, as well as detergents, wetting agents and emulsifiers.

Too big
to
ship



so U.S. Permabond® protective linings were installed on the spot

EQUIPMENT requiring protection against corrosive attack can be lined with Permabond linings—*right in your own plant*. The above storage tanks in a chemical plant, for example, were too big to be shipped. So United States Rubber Company's Permabond Lining was installed and vulcanized right at the job site—insuring complete protection against the corrosive chemicals stored in the tanks.

This is one more example of the versatility and adaptability of the Permabond process. You can also have it installed *as original equipment* on anything that contains or conveys corrosive materials and chemicals—piping, tanks, valves. And where special conditions occur, a wide range of synthetic Permabond lining stocks is available. Write to the address below.

"U. S." Research perfects it.

"U. S." Production builds it.

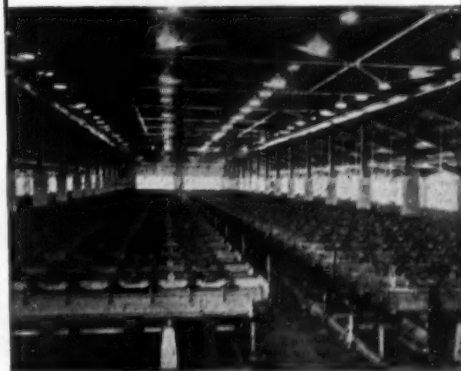
U. S. Industry depends on it.



UNITED STATES RUBBER COMPANY
MECHANICAL GOODS DIVISION, ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Hose • Belting • Expansion Joints • Rubber-to-metal Products • Oil Field Specialties • Plastic Pipe and Fittings • Grinding Wheels • Packings • Tapes
Molded and Extruded Rubber and Plastic Products • Protective Linings and Coatings • Conductive Rubber • Adhesives • Roll Coverings • Mats and Matting

These hundreds of electrolytic mercury cells producing caustic soda and chlorine are lined with specially compounded Permabond hard rubber lining.





DISTRIBUTION

Antara Chemicals (New York City).

- Itaconic Acid — 20-p. brochure contains technical information on polymerization, reactions, structure, patents, specifications and shipping. Chas. Pfizer & Co. (Brooklyn, N. Y.).

- Plastic fabrications—8-p. booklet describes use of polyvinyl chloride in processing tanks, exhaust systems and process equipment. Technical data included. Atlas Mineral Products Co. (Mertztown, Pa.)

- Fluosilicic acid standards—bulletin provides specifications for fluosilicic acid used for water treatment. Handling, testing and packaging data is also delineated. American Water Works Assn. (New York).

- Feed supplement—18-p. booklet furnishes information on vitamin-antibiotic-trace mineral feed supplements, feeding oils and amino acids. Nopco Chemical Co. (Harrison, N. J.).

- Colloidal silica—several technical bulletins give specifications and application data for Cab-O-Sil; an ingredient in some paints, varnishes, plastics and waxes. Godfrey L. Cabot, Inc. (Boston).

- Essential oils and aromatic chemicals — price list available to wholesale purchasers. Fritzsche Brothers, Inc. (New York City).

- Chemical analyses bulletin—lists 750 household and automotive specialties, also offers a chemical specialties information service. Chemical Specialties Research Laboratories (New York City).

- Bulk chemicals — revised price list and catalog is available to pharmaceutical, chemical and dye manufacturers. A number of new chemicals have been added. Winthrop-Stearns Inc. (New York City).

- Spot removal—layman's leaflet describes perchlorethylene treatment, emphasizes dangers of home cleaning. Stauffer Chemical Co. (New York City).

- Silicates — leaflet describes reactions and applications of soluble silicates. Philadelphia Quartz Co. (Philadelphia).

Products in the Future: Diamond Alkali has just made the first shipment of chlorine from its government-built plant at Muscle Shoals, Ala. The plant has a daily capacity of 225 tons of chlorine and 252 tons of caustic.

- Kontoor - Pak, Inc. (Rochelle Park, N.J.) has now begun sale of

IN STEARATES, A SPECK OF DIRT THIS BIG



...could render
less than perfect
Pierre's
Sauce Matelotte*

Stearates, you know, are often used in onion and garlic salt, to prevent caking under humid conditions.

Which is just an added reason we strive so hard—and so successfully—to keep Metasap Stearates absolutely *pure*. These Stearates are also used in many things—from baby powders and cosmetics to plastics, greases, paints—where even a few tiny specks of foreign matter would be too many for the performance and the reputation of your product.

Therefore, our reasoning is simple: "If we screen out those impurities, you are spared the trouble." At Metasap we use the most thoroughgoing series of fine screens, magnetic traps, and filters to be found in the industry. (We even filter the air.) These in addition to rigid quality control and the use of equipment which virtually rules out the chance of impurities in the first place.

For Stearates of supreme uniformity and quality, come to Metasap. Our technical service department will gladly advise and assist you.

*Recipe upon request.

Send for
our informative
FREE book,
"Metallic Soaps For
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Chicago, Ill. • Boston, Mass.
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the cleanest stearates made

Some industries served by Metasap

PAINT makers solve pigment suspension problems with Metasap Stearates, producing primers and sanding sealers that have excellent filling qualities.

LACQUER AND VARNISH makers use Metasap Stearates to assure efficient flattening, and to obtain better finishes.

PLASTICS molders use Metasap Calcium, Zinc, and Barium Stearates to improve internal lubrication, which assures superior preforms, better finished products, and longer mold life.

RUBBER processors use Metasap Zinc and Magnesium Stearates to lubricate molds and prevent uncured stock from sticking.

LUBRICANTS—Grease makers use Metasap Stearates because these outstanding soaps afford a wide range of quality bases that help producers to meet any grease specifications.

PAPER, Textiles, Cosmetics, Food Processing, and many other industries call upon Metasap Stearates to perform important services.

LOOK HOW

Linde silicones toughen up electric motors



LOOK AT the reasons why

Electric motors insulated with LINDE Silicones withstand high heat caused by overloads, frequent starts, and hot locations—prime causes of motor burn-outs. This dependable new insulating material also resists water, ozone, corrosive atmospheres and many strong chemicals.

Insulated with silicones, your electric motors, transformers, solenoids and other apparatus seldom cause down time. Specify this insulation on new equipment. Have your existing equipment rewound with Class H insulation based on LINDE Silicones. Watch maintenance costs drop.

LINDE and other divisions of UNION CARBIDE serve many industries. Their combined experience particularly qualifies LINDE to supply the correct silicone for electrical insulation, water repellents, protective coatings, release agents, and other uses. Let us show how these versatile new chemicals can improve your products or processes, increase your profits. Write Dept. L-44.

LOOK TO *Linde* for silicones

Linde
AIR PRODUCTS
COMPANY

A DIVISION OF
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The term "Linde" is a registered trade-mark of Union Carbide and Carbon Corporation.

DISTRIBUTION . . .

shaped-to-fit plastic packages. The firm claims a new plastics-forming process is used to make the packages.

- Laminated fabric—A new decorator fabric known as Filmtex (developed by Toscony Fabrics, Inc.) features a triple plastic lamination in which colors are locked in with a flexible layer of Krene plastic. The soil-resistant films are said to be applicable to any weight or type of fabric. Bakelite Co. (New York City).

- New dyes — National Alizarol Verdon S, a bluish-green chrome dye for wool, and National Black K Salt, a black dye for cotton and viscose rayon are offered by National Aniline Division, Allied Chemical & Dye Corp. (New York City).

- Methylene chloride — Combination bulk shipments with other solvents from the South Kearny Tank Terminal will supply distributors and consumers in New York City, northern New Jersey and southern New England. Solvay Process Division, Allied Chemical & Dye Corporation (New York City).

- Fatty alcohols — Several new wax-like fatty alcohols with chain lengths of 12-20 carbons are available from Fallek Products Co. Inc. (New York City).

- Radiation sterilizer—A stream of electrons from a 2-million-volt Van de Graaff particle accelerator is used to sterilize polyethylene squeeze bottles at the Bradley Container Corp. (Maynard, Mass.). The equipment is manufactured by the High Voltage Engineering Corp. (Cambridge, Mass.).

Water Worries: Hard water, and how to make it soft will be the problem attacked by a panel of experts at the seventh annual meeting of the Water Conditioning Foundation, April 28-29 at the Sheraton-Blackstone Hotel in Chicago.

Expanding Sales Coverage: Braun Corp. (Los Angeles) will move its warehousing operation into a new 134,000-sq.-ft. building. The firm handles laboratory equipment and industrial chemicals.

- The Ivey Chemical Co., just recently formed, will distribute textile processing and water treatment chemicals in the Greenville, S.C., area. Jasper W. Ivey, who heads the firm, was formerly associated with Moreland Chemical Co. and Mathieson Alkali.

Consult Sharples on **ALKYL AMINES** and their derivatives!

For almost a quarter-century, Sharples has been recognized as a pioneer and leading authority in research and production of the alkyl amines and their derivatives.

We have accumulated extensive knowledge and experience in manufacturing the following amine derivatives:

- ✓ Alkylene oxide adducts
- ✓ Dithiocarbamates
- ✓ Alkyl Ureas
- ✓ Alkyl Thioureas
- ✓ N-Substituted Amides
- ✓ Amine Salts

Consult us on your amines problem. Our broad experience and the flexible facilities of our plant are at your service.



Sharples Chemicals Inc.

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Ethylamines
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Isopropylamines
n-Butylamines
sec-Butylamines
Isobutylamines
Amylamines
1, 3-Dimethylbutylamines



SHOP-CLEANED: Furs tumbled in sawdust and solvent are now only part of the . . .

Fur-Bearing Market

Mink, sable and seal may rest easier at night, but the sleep for fur cleaners is troubled: fewer people are buying fur coats; the coats they buy are smaller, contain fewer pelts and are less often cleaned.

Right now the cleaners are in the first rush of another big spring storage season. But sometimes, when they stop to rest, the latest development comes unhappily to mind—a do-it-yourself aerosol cleaner called Fur Frost (White Frost Chemicals, Inc., New York).

Fur Frost, the pioneering try at home fur-care compounds, may create a headache for professional cleaners, but it stands to bring specialty makers an extra reward: besides sales of ready-made compounds, to the nation's 10,000 fur cleaners,* they now have a chance at budget-watching fur owners.

Sawdust and Silicones: To see what Fur Frost is coming into, you have to look at the way the professional cleaner operates. At the pro shop the basic cleaning process hasn't changed in years—since nonflammable solvents took the place of gasoline and naphtha.

* Biggest cleaner: Hollanderizing.

The furs are "drummed" in tumblers containing about a half pound/garment of ground nutshell, corncob or sawdust—depending on the color and class of fur—dampened with a little ordinary dry-cleaning solvent (carbon tetrachloride). Another tumbler shakes the sawdust loose and the coat is clean.

Since a silky "feel" is demanded on furs, waxes, resins and silicones are added to the cleaning compound to provide the desired texture and appearance. The treatment varies with the fur. Curly haired types like Persian lamb are lusterized by a wax. Guard-hair types like mink, which lose luster when the hairs curl—they should be as straight as a college-man's crew cut—are treated with resins that set when the coat is ironed. The resins coat the individual hairs, stiffen them and smooth away their microscopic "branches" to prevent interlocking, which causes the matting.

Ease and a Telephone: A few fur-cleaning specialty makers like professionals' supplier Kandu Chemicals, Inc. (New York), are building sales

in spite of the slipping fur sales.

A basement plant in a fur-cleaning shop, Kandu is prospering by offering professional cleaners easy-to-use products such as aerosol-packaged dyes (Regray) and lusterizers (Soft-Glo); bulk products like a combination cleaner-finisher (Clean-N-Glaze), and a silicone-treated (to round corners, prevent sticking in the fur) sawdust called K-10.

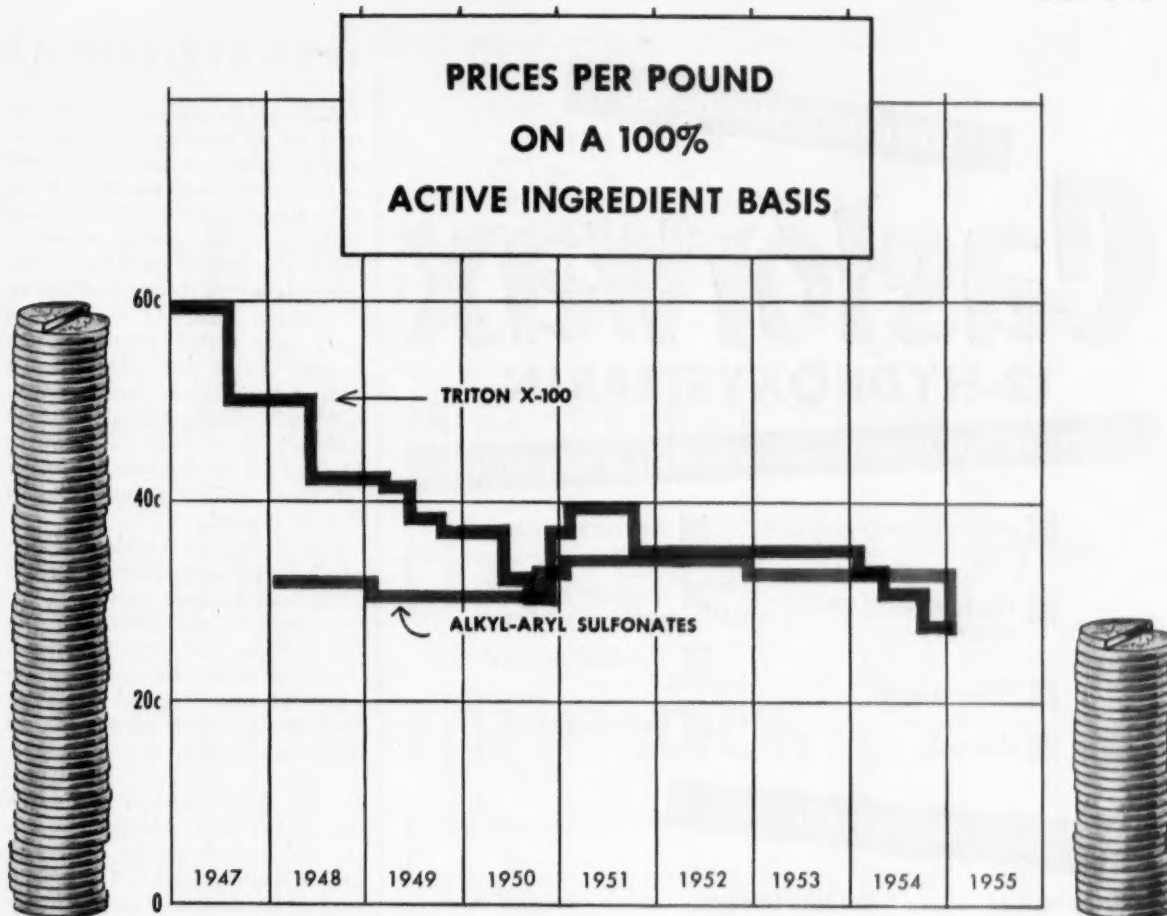
S. Wexler, Kandu's head, sells his products through several cleaning supply houses (including Reliable Fur Storage Equipment Co., one of the two big cleaning machinery makers) and by long-distance telephone. Typical of this specialty field, his setup is small: "I'm the only salesman and I spend three-quarters of my time in the cleaning shop."

Spray-at-Homes: Fur Frost's work, then, is to change fur owners' cleaning habits—its home-use aerosol is designed as a complete substitute for outside cleaning. A mixture of trichloroethylene, gum camphor, paradichlorobenzene and lanolin, Fur Frost sells at \$4.95 for 12 oz., enough to clean a 47-in. coat four times, or a small fur piece 10-12 times.

White Frost doesn't hope to replace commercial cleaners, but it does plan to find profit in supplementing them, and field the kind of ball the professionals have been dropping—the small, year-round furs that don't get very dirty and which owners wear too often to want to send away. Its advertising stresses the importance of frequent cleaning at home.



HOME - CLEANED: Push-button compound permits 'do-it-herself.'



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Eight years ago, TRITON X-100 was selling at a price of 59.5¢ per pound (truckloads)—almost twice the price of alkyl-aryl sulfonates. Because this powerful detergent did a superior job, it gained wide acceptance in the field. With wide acceptance came greater demand, more economical production, and substantial price reductions. The present delivered price of TRITON X-100 is 27.5¢ per pound in truckloads; less than half of the original price and competitive with alkyl-aryl sulfonates on an active-ingredient basis.

Low price, of course, does not completely explain the success of TRITON X-100. In addition

to its present low price, TRITON X-100 offers outstanding cleaning ability coupled with remarkable versatility in its applications. Practical experience, and test after test, prove that TRITON X-100 is one of the most effective surfactants available today for cleaning many hard surfaces and textile fibers.

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SPECIALTIES

Although its prospects are brightened by an expensive competition—outside cleaners operate through retail furriers who charge customers \$7 to \$25 a coat—it still has to fight a strong hesitancy on the part of owners to risk a new product on a fur costing hundreds or even thousands of dollars.

Synthetic Gain: As luxuries, fur coats have varied greatly on the "wanted" list. In 1946, sales reached a high of \$500 million, then sagged to \$250 in '51. Last year's sales of \$350 million indicated a partial recovery. Much of this rise has been in cheaper furs dyed brilliant colors—big coats that get cleaned.

Now, indications are that the biggest boost to the cleaning market will come from the new fur-like Dynel-Orlon synthetic pile fabrics. Soon after the synthetic furs were introduced, the infant industry almost fell from its crib when reports started coming in from irate consumers whose garments had been ruined by dry cleaners.

On the lookout for a market, fur-cleaning specialty makers pounced on the problem, began developing chemicals and methods for fur cleaners to use on the new fabrics. They're still working on them and expect shortly to reduce the cleaning costs to about one-third (they now cost about the same to clean as a real fur).

Meanwhile, the synthetics and the specialty makers are pairing off for what they hope will be a waltz. This May, one big synthetic maker will tag garments and ads with plugs for Fur Frost, and give purchasers 6-oz. cans. Borg Fabric Division, George W. Borg Corp., is instructing cleaners to use Kandu's Clean-N-Glaze and K-10 sawdust. Hollanderizing has its tag on garments of several manufacturers.

Fur cleaning doesn't appear to be a dying art. It is rebounding with new ideas, better methods. Auxiliary services like bleaching, denitting (removing lice eggs from hair of wild furs), desingeing (hair can be singed by the sun on the animal or by ironing the pelt), re-dyeing, are still being developed.

In the future, look for competition between fur-cleaning chemicals that can make cleaning a little easier, or a little less esoteric. Haertell Co. (Minneapolis) has a good example—a bag complete with chemicals in which two coats can be cleaned in an ordinary dry-cleaning tumbler.

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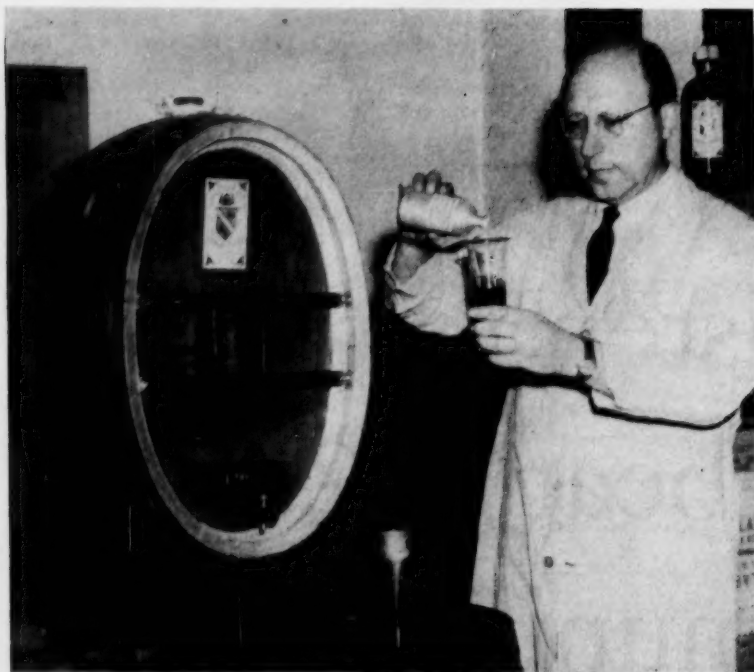
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CM'S TAYLOR: Antique casks are now too small for growing cologne sales.

Dollars for Old Scents

"New, unprecedented, revolutionary" are familiar words to readers of advertising. But when Caswell Massey Co., Ltd. (New York) uses the word "revolutionary" it's talking about the war fought by an early customer, George Washington.*

During the past six years such sales talk has helped build CM from a tiny drugstore making colognes for a few customers to a national factor in the upper-class reaches of today's scent market. Now crowded in a production-filled loft (there are no offices; President Ralph Taylor has his desk in the midst of stacks of cartoned bottles) the company is now in the process of moving to twice-as-big quarters.

Although selling colognes since 1752 over its drugstore counter at Newport, R.I., the "Oldest Chemists and Perfumers in America" has had external distribution only since 1949. When New York's sophisticated Lord & Taylor's department store asked for the line that year, CM, then unused to

volume sales, suggested sending six bottles. "No, no, dozens," L&T said.

Twelve-Hand Operation: Dozens have been the CM story ever since. Not yearning for production-line volume ("I have a mania for doing things by hand," says Taylor) the company now does a \$100,000/year gross through about 600 "class" stores. Staff: eight salesmen, six people in manufacturing (including Taylor, who does some operations).

Low promotion cost is the reason he gives for his low-capital success in a normally high-capital field. "Most people in this line have to spend hundreds of thousands of dollars on promotion, buy two-page ads in the *New Yorker*, and so on. We just caught hold. There's drama behind our line." CM buys only small ads in taste-setting books like the *New Yorker*, *Gentry*, *Town & Country*, *Vogue* and *Steeplechasing in America*.

Unlike some in the business, CM is not just a jobber, compounds its own scents. Most ingredients are synthetic; Taylor considers competitors' talk of using expensive natural materials (like grape alcohol) the "walking in the garden, wind in your hair, when in-

spiration strikes, hoop-de-la." "There's nothing wrong with the alcohol turned out by U.S. Industrial Chemicals or Commercial Solvents," he says, calmly.

Toilet and bath soaps contain an essence of whale oil which, he says, "gives a feeling of luxury."

Aiming at a class market (cognes: 8 oz., \$6.50; toilet waters: 8 oz., \$14; perfumes: 1 oz., \$25), CM likes to keep things a little different. When the toilet water line was added, Taylor revived the lost packaging art of making iron-molded apothecary bottles with raised glass labels.

Museum Piece: The CM apothecary shop, now officially separate from the cologne business and run by Taylor's brother Milton, has been in New York since 1860.

In spite of a decline of 29% in U.S. per capita purchase of fragrances between 1947 and 1953, and a shrinkage of the perfume market from 83% to 60% of American women, Taylor believes the market for men's colognes is growing. Wartime substitute "junk" products left many new users with a bad reaction, but he thinks the business is now pulling out of that slump via better products. CM, at any rate, doesn't have any sales problems. "It's easy," as a salesclerk says. "You just talk history."

Backswing

Like a reciprocating engine is legal and legislative opinion on "fair trade"; and it now seems to be definitely on a "no fair trade" stroke. Most important indication of the present trend was Attorney General Herbert Brownell's public statement that he favored repeal of the fair-trade laws (including the McGuire Act). Brownell's statement was based on a report of the National Committee to study the Antitrust laws.

But the new attitude exemplified by the Attorney General has been apparent for several months. One of the more important signposts was the ruling of the Arkansas state supreme court early this year (CW, Feb. 19, p. 96) that the nonsigner clause of the law was unconstitutional, followed by a (lower court) ruling in Colorado that the nonsigner portion of that state's law was unconstitutional (CW, March 19, p. 111).

There are other indications, too, of a changing attitude:

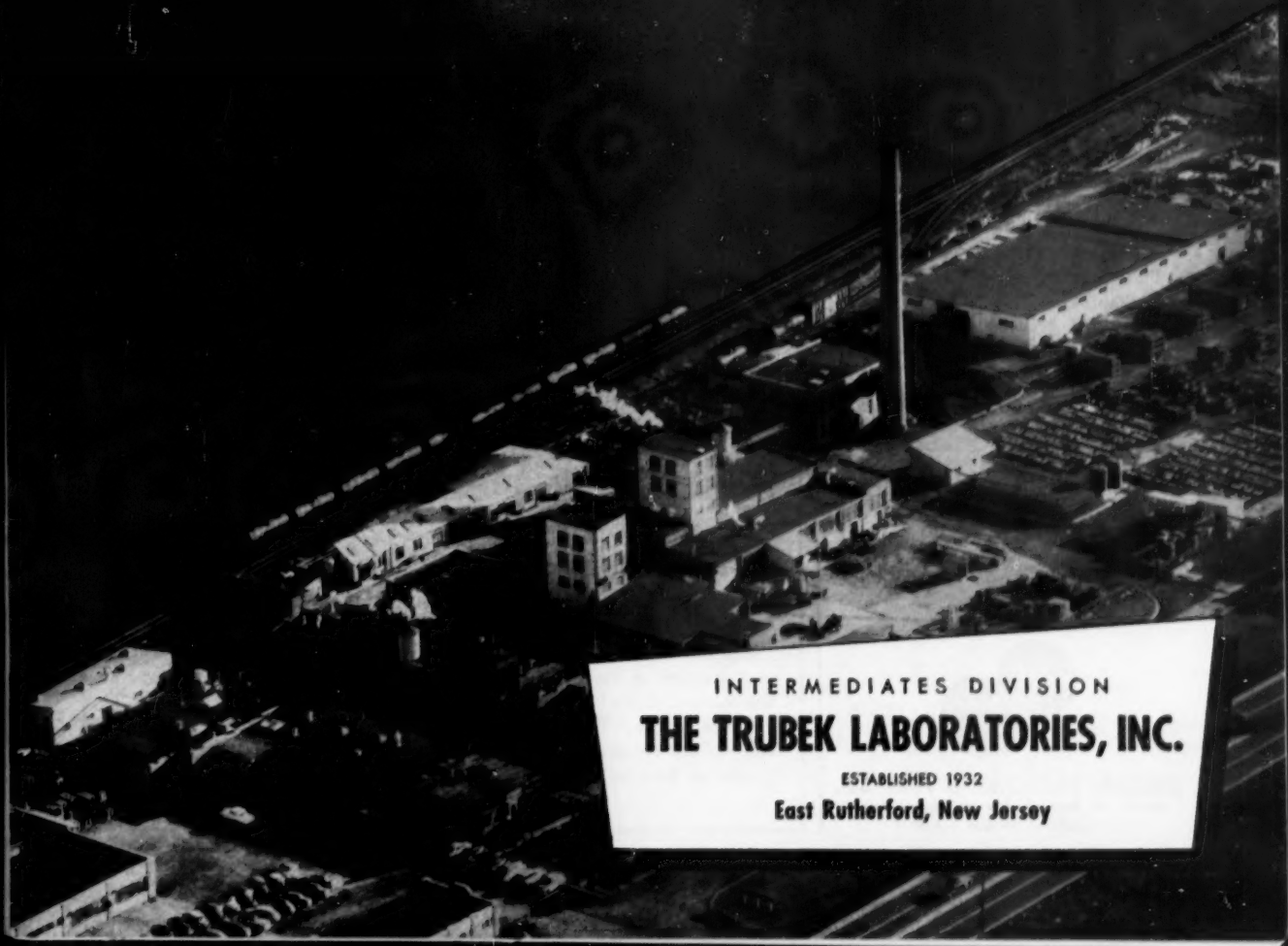
* The company says that Washington used its No. 6 brand of cologne. No. 6, the oldest item, has been supplemented through the years with others: Jockey Club, Newport, Casma and Verberna, all of which bear a label authentically pre-Civil War in type and design.

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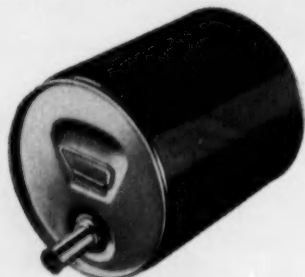


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SPECIALTIES

• The Federal Trade Commission last February refused to play any part in enforcing fair-trade prices—the first time the commission had ever taken a stand on this matter.

• In Delaware, a state that has seen considerable fair-trade strife, a bill to repeal the fair-trade law was introduced to the legislature two weeks ago.

• In Tennessee, Ernest Anderson, a supermarket operator who has been involved in several price-cutting disputes, has filed suit in chancery court to have the Tennessee law repealed.

Druggist's Fight: These events seem in marked contrast with many of the newsmaking decisions of last summer, when drug houses were rigidly enforcing fixed prices. Perhaps best known were the suits involving pharmaceutical firms and John Schwegmann, a New Orleans fair-trade foe. At that time, the drugmakers were quite

successful in getting injunctions under Louisiana law to prevent price cutting.

Although some observers predict an early demise of fair trade, there is no question that its proponents can rally plenty of support. Fair trade was deemed a dead duck just before the McGuire Act was passed—but it was enacted by a considerable majority in Congress. It is certain that fair trade will never die by default.

Counterpunch

When Judge W. C. Coleman, U.S. District Court, Baltimore, ruled in February (*CW*, Feb. 12, p. 15) that Carter's Rise aerosol shave cream patent was being infringed by Colgate, Stalfort and Read Drug, few felt the matter had been finally resolved. And recent legal action indicates that the dispute is anything but settled.

Latest move is that of the Mennen



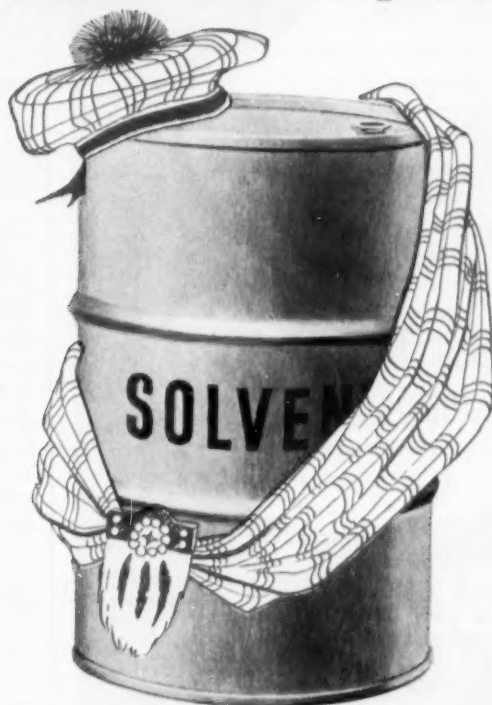
No Splinters

TROWELED ON, a special new cement coating is being applied to about 100 boxcars being renovated in the shops of the Union Pacific. Big feature: it can be nailed.

Weyerhaeuser Timber Co. developed the cement flooring, using ground fir bark to give the needed

resiliency and "nailability." Plasti-nail, as it is tagged, is applied over a felt paper lining, and when dry, offers a firm surface for nailing. Although it grips spikes securely, it is not splintered when they are removed—a big advantage over conventional plank floorings.

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SPECIALTIES

Co. (Morristown, N. J.), which last month filed a complaint in the New York District Court asking a declaratory judgment that the Rise patent (U.S. 2,855,480) is void, and not being infringed.

Mennen named as defendants Carter Products, Inc., Joseph Spitzer, and Marvin Small, and averred that their patent is invalid because Spitzer and Small were not the original inventors—that the same thing had already been patented and described here and abroad more than a year before the Rise applications.

Among the products listed as antedating the Carter patent application: Gebauer Chemical Co.'s (Cleveland) Sonni Foam Shampoo (no longer sold) and Daggett & Ramsdell's pressurized shaving lather (also off the market now).

Gebauer had witnesses testifying at the Colgate-Carter trial, but D&R didn't, and is apparently doing its best to stay out of the controversy. Chances are, however, that with the new suit and the upcoming appeal of the Colgate-Carter decision (likely this June), there will be few concerned in any way who won't eventually participate.

To Read: "How to Apply Iron Phosphate Coatings to Steel in Preparation for Painting" details the case for Oakite Products, Inc.'s (New York) CryCoat process. Oakite will send the booklet free on request.

• Claremont Pigment Dispersion Corp. (Brooklyn, N.Y.) has a price list and a technical bulletin available on its 4000 series of color paste concentrates for epoxy, Thiokol, polyurethane and isocyanate resins.

• Monsanto's new booklet on Santolene C "single treatment" rust and corrosion inhibitor for petroleum products supplies data and case histories.

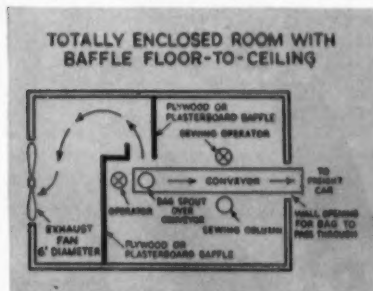
• "Treating Concrete with Silicate" is the subject of a folder available from the Philadelphia Quartz Co. (Philadelphia).

Let Go: Polyester resins are released easy and clean from molds coated with Ram Chemicals' (Gardenia, Calif.) new Part-A-Part. Ram also offers a catalyst, Garox QZA, for polyester resins, diallyl, phthalate, allyl and vinyl-type monomers; and Ram Mold Sealer 306, a sealer for porous molds.

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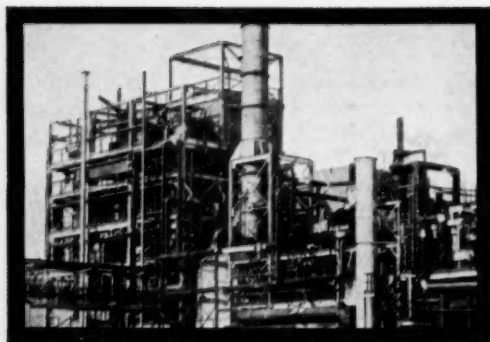
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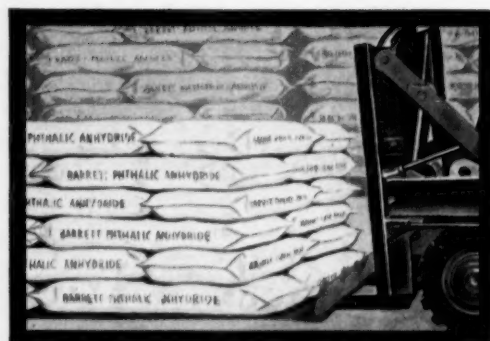
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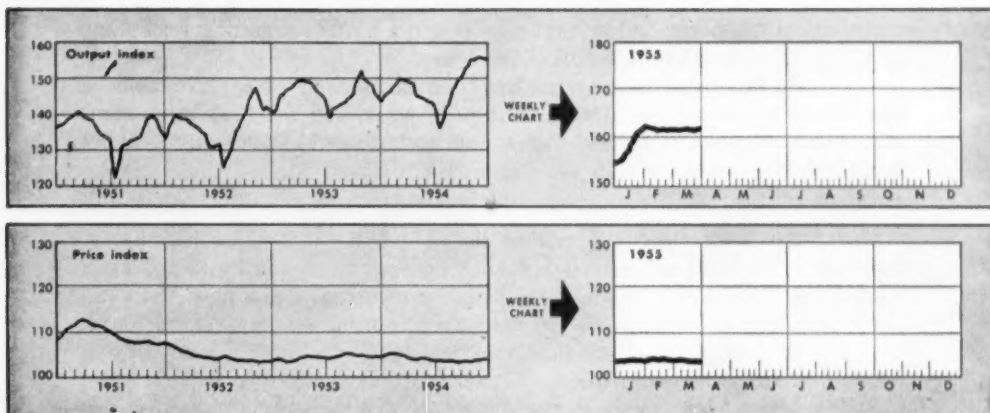


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CHEMICAL PROGRESS WEEK—MAY 16-21

MARKETS



WEEKLY BUSINESS INDICATORS

CHEMICAL WEEK Output Index (1947-49=100)
 CHEMICAL WEEK Wholesale Price Index (1947=100)
 Stock Price Index of 13 Chemical Companies (Standard & Poor's Corp.)

	Latest Week	Preceding Week	Year Ago
	161.4	159.8	145.5
	104.1	104.1	104.3
	392.2	382.4	292.2

MONTHLY INDICATORS—Trade (Million Dollars)

All Manufacturing
 Chemicals and allied products
 Petroleum and coal products

	Manufacturers' Sales			Manufacturers' Inventories		
	Latest Month	Preceding Month	Year Ago	Latest Month	Preceding Month	Year Ago
All Manufacturing	25,230	24,910	23,620	43,643	43,625	46,115
Chemicals and allied products	1,812	1,779	1,590	2,990	3,026	3,080
Petroleum and coal products	2,235	2,207	2,139	2,574	2,587	2,719

MARKET LETTER

First-quarter '55 tally on viscose rayon shipments reflects bounding textile business for sellers of sulfuric acid, carbon disulfide, and caustic soda. Extended to a 12-month basis, the figures just out from the Textile Economics Bureau augur rayon shipments for this year of 410-420 million lbs. as high-tenacity yarn, 225-230 million lbs. as regular and intermediate filament. The total of 635-650 million lbs. (including a small amount of cuprammonium viscose) will top last year's turnout by at least 22%, will at least break even with '53's total. In the staple and tow department, too, sales may run up to 350-375 million lbs. by year's end, about 12% above last year's, but 70% above '53's.

Marketers of acetic anhydride, acetic acid, acetone (*see cumene phenol story, p. 83*), and sulfuric acid get a boost from first-quarter viscose acetate output. On an annual basis, the pickup in acetate shipments promises to give a '55 total of 235-245 million lbs. acetate filament, 80-90 million lbs. staple and tow acetate. At this rate, filament acetate will top '54's shipments by at least 20%, but may still fall 4% short of the consumption in '52. Although acetate staple and tow is making a good recovery—up some 23% above '54's first quarter, total shipments may end the year 14% below those of 1952.

Styrene output is being nudged ahead by plans of Foster-Grant to double capacity at its Baton Rouge plant to 50 million lbs./year. The

MARKET LETTER

installation, in operation less than a year and a half, is currently producing at a clip of more than 24 million lbs./year.

So far, the firm's styrene has been earmarked for captive molding operations in Leominster, Mass. But next week, for the first time, some monomeric styrene will head for a noncaptive user—Copolymer Rubber & Chemical—located within the Baton Rouge area.

■

Consumers of polysulfide liquid polymers are buying again. Increase in demand has moved Thiokol Chemical to reopen its temporarily shut down Moss Point polymer facilities (*see p. 18*). Until now, the company has been able to satisfy all calls from output of its Trenton plant.

Though the oil- and solvent-resistant elastomers filter into a myriad of industrial and military uses (e.g., caulking and potting compounds), biggest play at the moment is for modifying epoxy resins. There's little danger of a repeat of the shortage that sparked building of the Moss Point plant; capacity is near 12 million lbs./year. Current production rate, however, probably is running at about a quarter of that, with a doubling to 6 million slated—if the buying surge continues.

•

Users of glycerine continue to exert pressure on available supplies, contributing to the current firmness in price. Settlement of the strike at Colgate a couple of weeks ago gave a modicum of relief to the market, but perhaps further easing is in sight. Reason: scare buying is letting up. Glycerine customers, despite an occasional delay in shipments, are getting just about all the material they need.

Stocks in producers' hands are down somewhat, but there's a buildup scheduled soon, as most try to increase inventories before summer vacation shutdowns cut production.

•

In the agricultural chemicals arena, urea producers are finding business good. Many actually are being pressed to keep up with orders. That's in direct contrast with the lagging calls for most other fertilizer materials, but added to the crop- and stock-feed demands for urea is the brisk consumption in urea-formaldehyde resins. The latter continue to move well to the paint and plastics industries.

Despite the tight over-all supply situation, consumers aren't too concerned about prices. There's little indication in the trade that the urea pricing pattern will trend upward—at least not in the immediate future.

•

A price hike in lead? The trade says it's possible and soon—if strong domestic demand holds and the government continues its purchases.

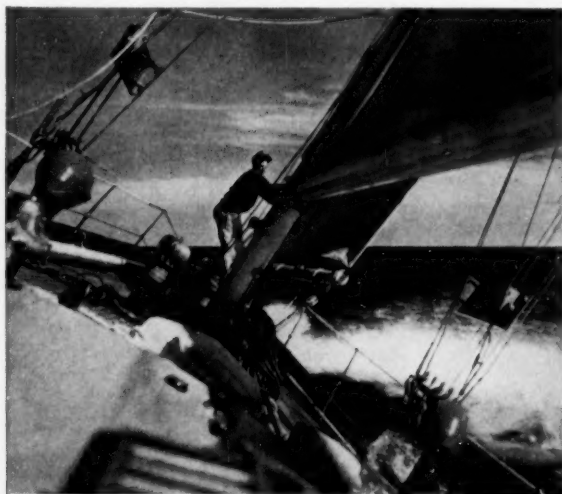
SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending April 18, 1955

UP					
	Change	Net Price		Change	Net Price
Casein, Argentine, acid-precip., ground, 100-lb. lots or more, duty paid	\$.0025	\$.2275	Copper chloride, anhyd., bbls., works	\$.02	\$.435
			Red lithol toner, bbls., works	.06	.85
DOWN					
Mercury, metal, 76-lb. flask per flask	\$1.00	\$317.00	Platinum, metal, works oz.	\$2.00	\$ 76.00

All prices per pound unless quantity is stated.

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Resin NEWS



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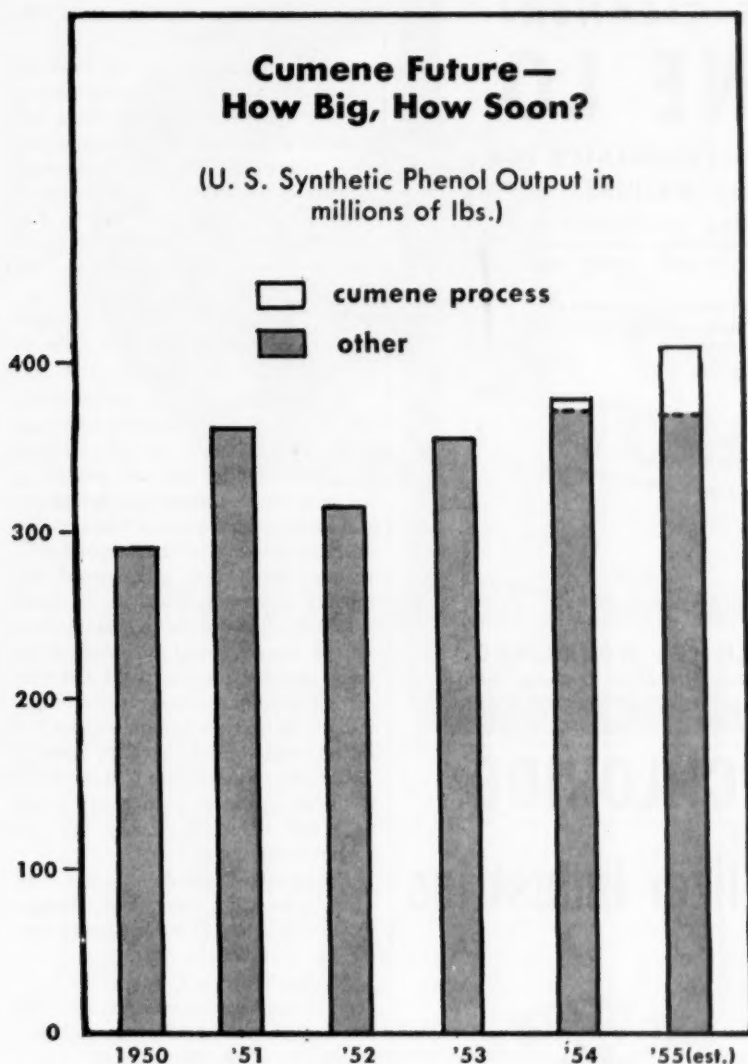
Frank Wedge heads our Commercial Chemicals Development Department. His group assists manufacturers in the profitable application of our chemicals.

For the past 18 months, Frank has been working with our ethers of hydroquinones, D.M.B. and H.A., both in the field and in the laboratory. His experience with these intermediates is available for your use.

A careful review of the properties of these chemicals may suggest an answer to one of your product or processing problems. Address your correspondence directly to Frank Wedge, **ANSUL CHEMICAL COMPANY**, Dept. C-21, Industrial Chemicals Division, Marinette, Wisconsin.

PROPERTIES	ANSUL ETHER-D.M.B. 1,4 Dimethoxy Benzene (Hydroquinone dimethyl ether)		ANSUL ETHER-H.A. Hydroxy Anisole (Hydroquinone monomethyl ether)	
Molecular weight	138.16		124.1	
Melting point	56.3°C.		52.5°C.	
Boiling point	213.0°C. @ 760 mm Hg.		246.0°C. @ 760 mm Hg.	
Density, g/l.	1.038 @ 55/55°C.		1.55 @ 20/20°C.	
Solubility	@ 25°C. in grams/100 grams of solvent		@ 25°C. in grams/100 grams of solvent	
in water	insoluble		4.1	
in benzene	177.0		69.5	
in acetone	233.0		426.0	
in ethanol	33.3		456.0	
in ethyl acetate	150.0		245.0	
Color and form	white to colorless flakes		colorless, waxy flakes	
Odor	pleasant (sweet clover)		characteristic	





Cumene Phenol Profits Wane

A chemical child of just one year this coming May—U. S. phenol synthesized from cumene—now appears to have a less decisive market advantage over that from competing chlorination and sulfonation processes.

Today, the fortunes of phenol by the hydroperoxidation of cumene are somewhat less attractive because of an acetone surfeit and attendant price decline. However, the general outlook for phenol itself seems brighter on several horizons. Production of the synthetic alone should reach 410 million lbs. this year; of the natural, 25-30 million lbs.

In the cumene-synthesis phenol vanguard in the U. S. are Allied Chemical's Barrett Division plant at Frankford, Pa., and Oronite's (Standard Oil of California) at Richmond, Calif. Both began turning out phenol in mid-'54. Hercules Powder* added its output by the end of '54, bringing the total number of operating cumene-derived phenol plants in the U. S. to three (see *Synthetic Phenol Capacity table*).

After getting the upper hand over some process difficulties, the three plants turned out an estimated 5-10 million lbs. of phenol last year—more likely the lower figure (see *chart*). This year, trade circles hint that they may produce 30-50 million lbs. of a capacity rated at 95 million lbs. That will add 18-30 million lbs. of coproduct acetone to a market that's already near-glutted.

When coproduct acetone (0.6 lb. produced with 1.0 lb. of phenol) sold at 8½¢/lb., cumene phenol makers felt assured of a competitive lead over the chlorination and sulfonation processes. But before the cumene-based units even turned out a million pounds or so of phenol, acetone demand slackened. By the end of '54, the ketone was quoted at 7½¢/lb. in tank cars, and now at 7¢/lb., freight allowed. And each cent lopped from the selling price of a pound of acetone shaves

U.S. SYNTHETIC PHENOL CAPACITY

(in millions of lbs.)

These Producers	Can Synthesize This Much	By These Processes
<div> <div>↓</div> <div> Allied Chemical & Dye, Barrett Div., Frankford, Pa. Dow Chemical, Midland, Mich. Durez Plastics & Chemicals, Tonawanda, N. Y. Hercules Powder, Gibbstown, N. J. Monsanto Chemical Avon, Calif. Monsanto, Ill. Oronite Chemical (Standard Oil of Calif.), Richmond, Calif. Reichhold Chemicals, Tuscaloosa, Ala. Union Carbide, Bakelite Div., Marietta, O. Carbide and Carbon Div., Institute, W. Va. </div> </div>	<div> <div>↓</div> <div> 30 210 65 26 30 90 35 54 60 3 </div> </div>	<div> <div>↓</div> <div> Cumene Chlorination Chlorination Cumene Sulfonation Sulfonation Cumene Sulfonation Chlorination Coal hydrogenation </div> </div>

*Hercules Powder and Distillers Co., Ltd., England, developed the cumene synthesis of phenol. B.A. Shawinigan, East Montreal, Que., began production of phenol via cumene in 1953. However, Canadian phenol cannot hurdle U. S. tariff walls of 3¼¢/lb. duty plus 22½%, although U. S. phenol enters Canada and is enjoying a substantial market in Western plywood manufacture.

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MARKETS

0.6¢/lb. from the cumene phenol maker's profit advantage over the other two processes.

Besides coproduct acetone, Hercules Powder is already recovering methyl styrene from the cumene synthesis, and expects to retrieve acetophenone as a third coproduct. The latter compound is gaining recognition as a commercial solvent (CW, June 5, '54, p. 90). Barrett Division is accumulating crude stocks of both, awaiting purification. Oronite is not pushing markets for either compound. B.A.-Shawinigan hopes to develop markets in order to gain credit for the two products.

Acetate Limp: Today, phenol-from-cumene producers, saddled with acetone, hold on tightly to what markets they have for it, and are scratching for new ones. Acetone marketers are still limping from a major slump in the acetate rayon market. In fact, cellulose acetate production plummeted by roughly 100 million lbs. in '54 from '53's output. A decline in acetate dries up, of course, need for acetone in rayon acetate spinning baths and film casting solutions, where an estimated 0.12 lb. of acetone is required per 1.0 lb. of acetate product (CW, June 5, '54, p. 89). The decline also cut back the relatively small portion still going to acetic anhydride made via the ketene route.

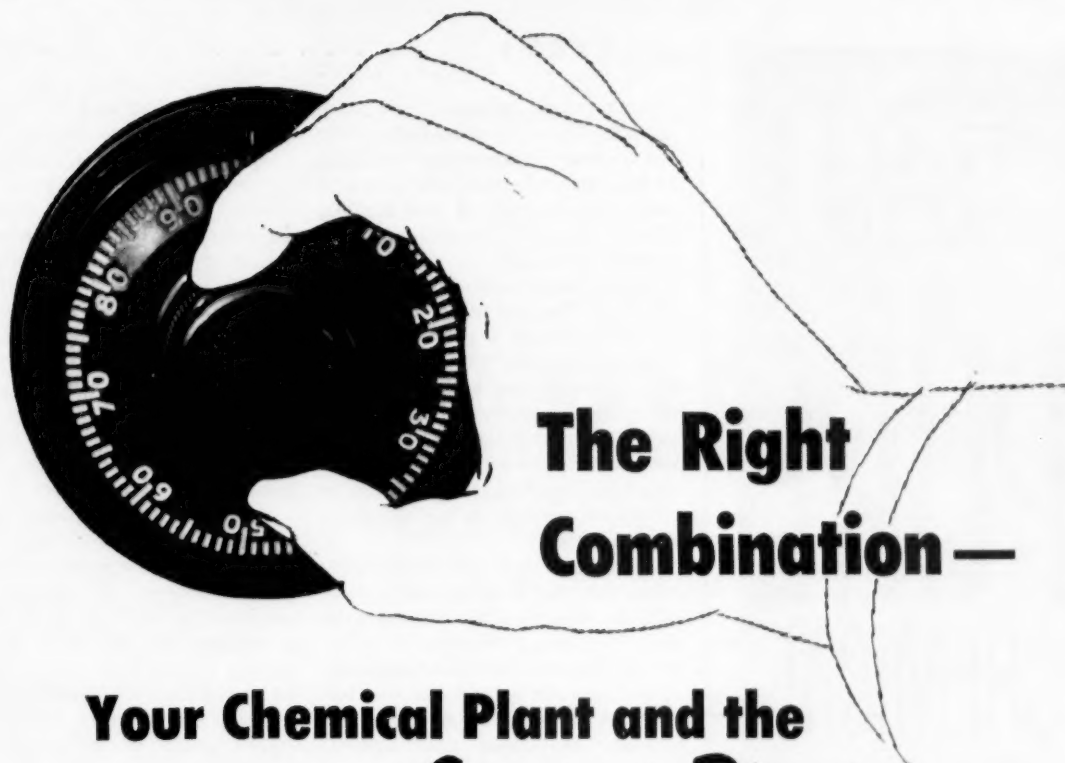
Nevertheless, absolute volume of rayon acetate is rising, even though its share in the total textile market may shrink.

Another brake to U.S. acetone business: dwindling exports to countries just now achieving sufficiency in home production of the ketone. Last year a little over 8.5 million lbs. were shipped out. Compare that with 9.2 million in '53, and 23.4 million in '52.

On the brighter side for acetone has been the resurgence of cellulose ester lacquers—particularly in the flourishing automobile industry. There, General Motors has led a trend to use of a low-boiling solvent like acetone with a high-boiler—the "high-low solvent"—in place of medium-boiling components. But acetone at this time plays a relatively small part in paint, varnish and lacquer solvents.

Plastic Promise: As cumene-derived phenol comes of industrial age in an era of acetone plenty, the market for the cyclic compound itself narrows at some points, widens at most others.

For instance, phenolic molding



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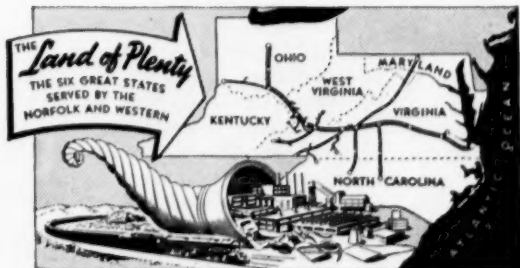
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MARKETS

powder usage plunged downward suddenly about a year ago when television cabinet makers began switching to masonite and metal. And, of course, each year an array of new molding powders for special applications trims phenolic resin sales.

Other phenol outlets promise profitable days. The fact is that shell molding could absorb a good portion of what may appear to be potentially excess phenol. Similar growth is predicted for laminates and castings for industrial tooling. Another tidy market may be phenolic plastic pipe, provided that handling techniques can be developed to match the low cost of the phenolic resins.

An acceleration in demand for epoxy resins now may boost consumption of both the phenol and the acetone of the cumene process (CW, May 2, '53, p. 37). The epoxies come from bisphenol-A and epichlorhydrin, and the bisphenol-A is made from equimolar amounts of phenol and acetone. Poundwise, however, the epoxies today at 15-20 million lbs./year are

greatly overshadowed by the major phenol and acetone outlets.

When cumene and acetone are turned out at the full capacity of the cumene synthesis plants, there may be serious market pressure on producers of acetone from isopropyl alcohol. However, at least one IPA-acetone producer—Shell Chemical—has not quailed at the prospects, completed plant expansion for both products last year. But at this moment there is now said to be a process to convert IPA to acetone that will yield it at less cost than by currently known dehydrogenation processes.

Assuming the availability of raw materials benzene and propylene, a ready market for acetone becomes the present arbiter of cumene-process phenol. If a producer owns chlorine or sulfuric acid and has to build an acetone market from the ground up, he will think twice before going to cumene. And even for those phenol makers already in the cumene camp, there's going to be some busy scouting for acetone customers this year.

One Chrome Color Moves Up

Government statistics, though often dull, frequently reveal significant trends. Latest data on chrome colors, for instance, point up the fact that molybdenum orange*, managed to vary the down-up-down production pattern of the last three years.

Molybdate orange output in '54 (slightly more than 9.6 million lbs.), actually topped, by some 1.3 million, the previous high set in '53, and ran almost 2.6 million lbs. ahead of the year before.

The surge in molybdenum orange pigments can be traced to two paint consumer practices:

- The custom of manufacturers' using bright colors for farm equipment, construction machinery, trucks, materials handling equipment, and similar industrial material.

- The relatively recent utilization of brilliant color where visibility is essential for safety.

The latter now includes aircraft, traffic markers, dangerous plant equipment, etc.

Primary competitive pigments in these and other outlets are the

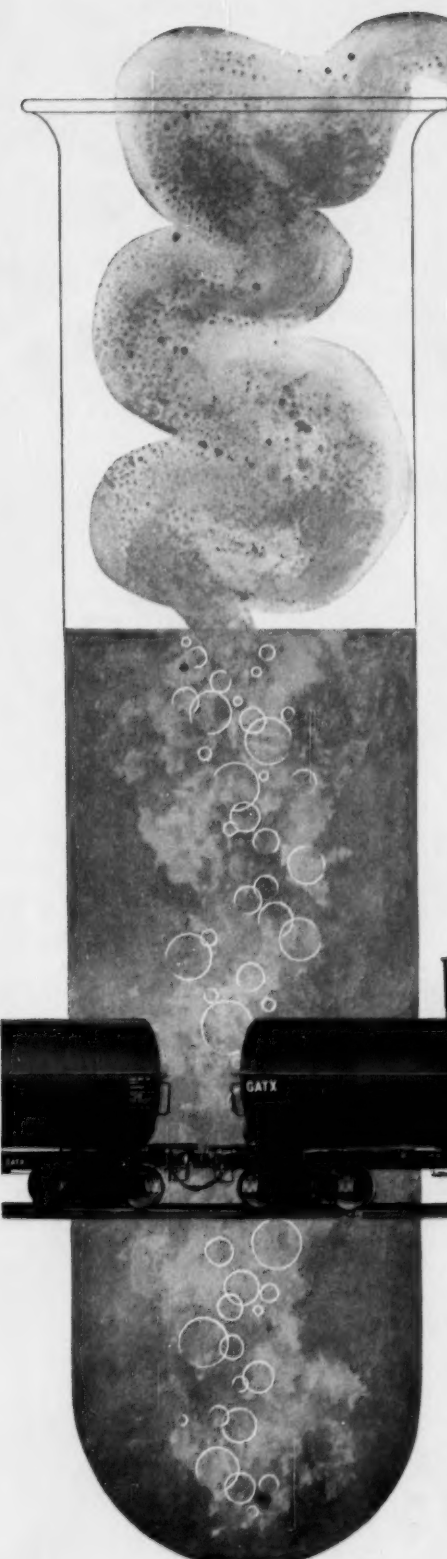
chrome oranges. On the surface it would seem that the chromes have a marketing edge over the molybdated material; price of the latter (about 45¢/lb.) runs approximately 30% higher than the chrome orange 31-32¢/lb. tag. However, molybdenum orange, though more expensive on a per pound basis, is economical in terms of cost per square foot of area covered.

Add too, molybdate's tinctorial versatility: although it has a narrow color range, it can be blended with yellows to produce light oranges, with reds to make deeper oranges, and with maroons to produce reds. This is what's behind molybdenum orange's fivefold production increase since the end of World War II.

And, too, some companies that produce both types of orange have put sales emphasis on the comparative newcomer. One angle that has been pushed strongly is lightfastness.

U.S. Dept. of Commerce figures do not report chrome orange output separately, but it's estimated currently near the 5-million-lbs./year mark. That's just about half the molybdate pigment's expected production for '55.

* Full name: molybdate chrome orange.



NaOH

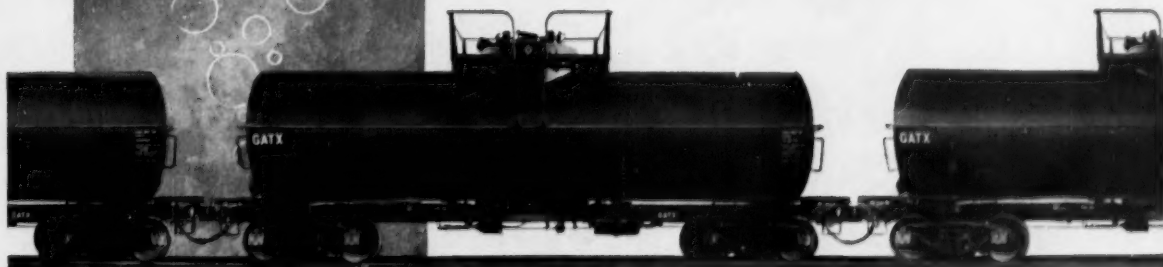
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MCA'S CRASS: The path is cleared of legal hurdles.

The Big Stand on Standards

The proposed standards for chemical industry pumps (CW, March 12, p. 48) moved a step closer to reality as representatives of chemical companies, engineering firms, pump makers and other interested parties got together under the auspices of the American Standards Assn. last fortnight. Purpose of the meeting: to decide whether or not developing the standards would be worth while. The unanimous opinion of those present: it would.

In essence, the group decided to accept—with minor changes—the suggestions put forth by the Chemical Industry Advisory Board of the American Standards Assn. (headed up by Carbide's J. G. Henderson) and its Subcommittee on Centrifugal Pumps (headed by Dorr-Oliver's F. H. Conover). Although the development and final acceptance of a set of standards is, of necessity, a time-consuming process, the group made some decisions that set the wheels in motion. This is what they agreed:

- A project should be initiated to develop standards for the pumps under consideration.

- The pumps under consideration are "horizontal, end suction, single-stage, centrifugal pumps, including base plates suitable for use in the chemical industry, having an approximate capacity range of 5 to 1000 gpm., for temperatures to 500 F, with discharge heads not exceeding that allowed by American Standard 150-lb. (steel) flange and may include any suitable material of construction. Consideration may include such items as dimensional interchangeability; features desirable to minimize maintenance costs; uniform lettering for like dimensions; uniform nomenclature and definitions."

Under this definition would now fall some 130,000 pumps, and the number is growing at a rate of about 8% yearly. The subcommittee estimates that the standards when developed would save the chemical industry alone \$6.8 million/year.

- The project should be carried out by a Sectional Committee.

- The Manufacturing Chemists' Assn. and the Hydraulic Institute

should be invited to assume administrative sponsorship of the program.

No Legal Barriers: Chairman for the meeting was ASA's technical director, Cyril Ainsworth. But he pointed out that the development of the standards was squarely up to the industries concerned. Said he: "ASA is strictly a clearing house for standards; we have never developed one. Our job is primarily to see that each interested party has his day in court, a chance to speak his piece before a neutral observer."

In response to a query from MCA Secretary Maurice Crass,* Ainsworth made it clear that the Justice Dept. has never interfered with such a cooperative venture, then turned the meeting over to Henderson and Conover to explain what had been done and what the standards would encompass.

Several proposals were made that would broaden the goal. But Conover explained that the whole idea of the standards was to start with a relatively narrow object in mind and gradually broaden it.

*MCA's three criteria for any action: Will it benefit the whole industry; can it be done better cooperatively than individually; is it legal?

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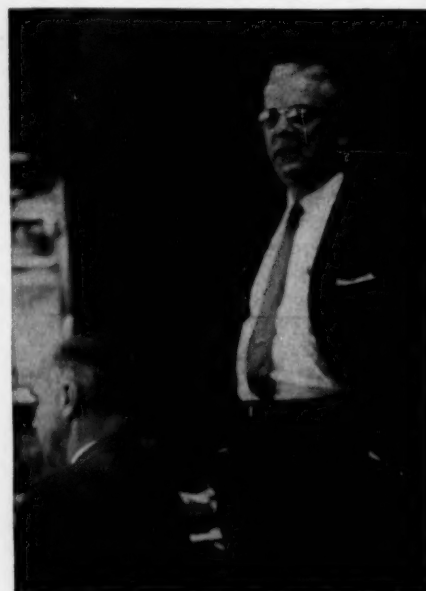
Another suggestion was that the proposed standards might result in one ideal pump that would include the best features of all presently available models. But although that idea looks attractive on the surface, it's the last thing that the proponents of the standards want. Said Monsanto's Don Brand, secretary of the pump subcommittee: "We're not interested in a standard pump; but standards for pumps. What we're proposing would affect dimensions of the pumps, not hydraulic design. We don't expect to make any attempt to have one pump maker's impeller, for instance, fit another manufacturer's pump."

Opening the Door: The project to set up standards for pumps is an important move for the process industry. A representative of a prominent engineering-construction firm said that an internal set of standards in his firm had effected savings of \$100-\$200/pump.

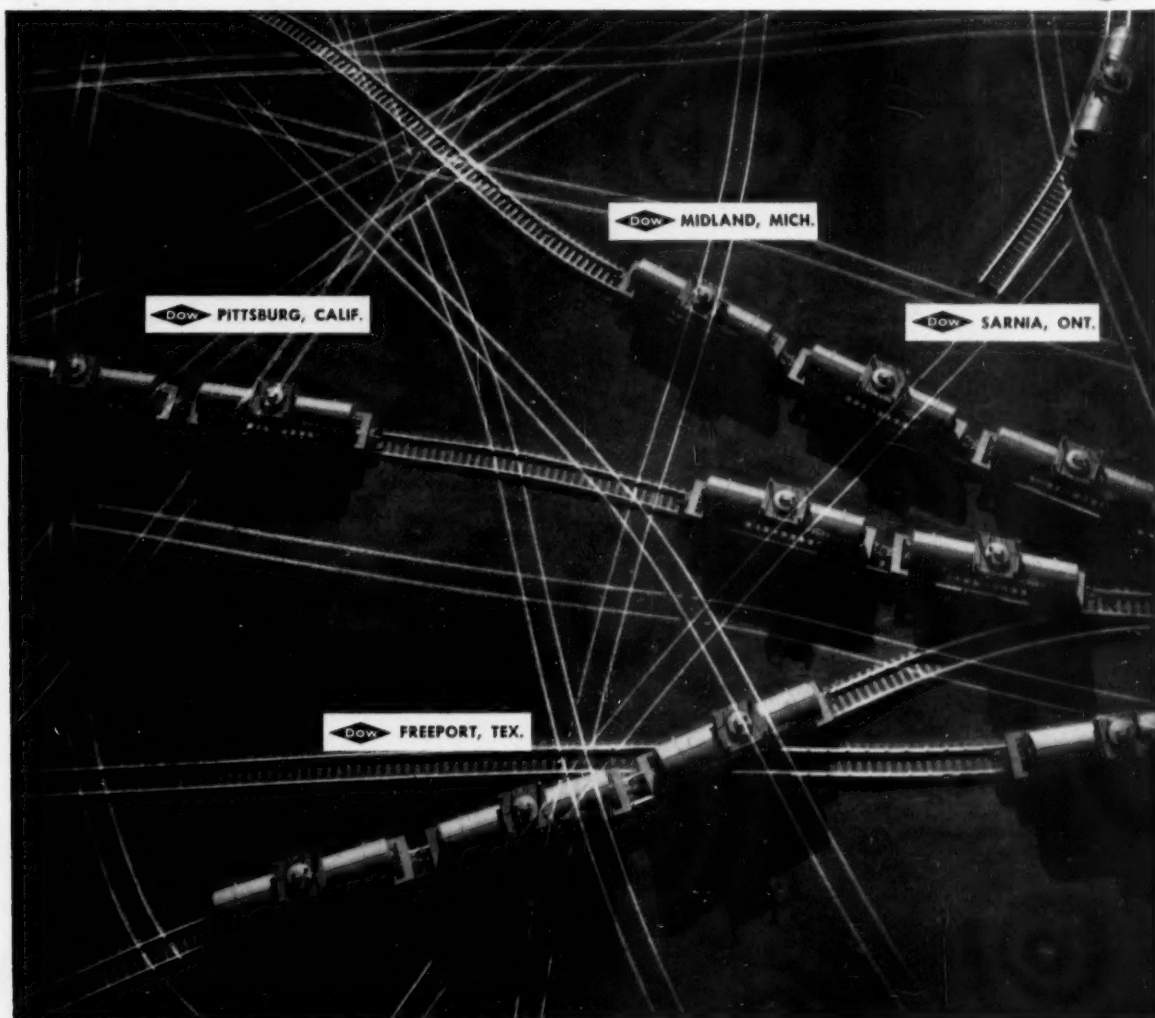
And unquestionably, realistic standards for pumps—major components of all chemical plants—would make life easier for design engineers, purchasing agents, operating and maintenance engineers.

Even more significant, however, is the fact that acceptance of this set of standards would open the door to standardization of other items of equipment. The chemical industry has already made some progress in this

direction (CW, Aug. 4, '51, p. 21). However, it has lagged far behind other industries. This is understandable because the complexity of its processes and the big advances in technology that make for rapid obsolescence mean that standardization is a difficult job. But there's still a large area that can be exploited by standards.



CIAB'S HENDERSON: First the goal, then broadening.



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Atoms on a New Frontier

Stanford Research Institute and the Atomic Industrial Forum teamed up to put on a two-day conference on "Atomic Energy—the New Frontier" in San Francisco earlier this month. Chemical process planners were there in number to help settle the new country.

Held in the storied Hotel Mark Hopkins, the conference drew 528 people. It was originally scheduled as a regional session, but the progress made in atomic energy warranted a full-fledged national meeting.

The two sponsoring organizations had two ideas in mind: to stimulate and educate industrialists either just entering or considering a venture into atomic energy programs, and to provide a vehicle for significant news in the field. That the first goal was achieved was evidenced by attendance from sections throughout the U.S. and by the unusually large number of conferees in sessions.

And four important revelations bolstered the realization of the second goal:

- Additional information on Consolidated Edison's \$55-million, 236,-

*SRI's Ed Zebroski and AIF's Oliver Townsend.

000-kw. reactor disclosed that only 140,000 kw. will be generated in the reactor; the other 96,000 kw. will come from a separate oil-fired superheater. The pressurized-water thorium-uranium converter will be built by Babcock and Wilcox, will go critical by the fall of 1959.

- Commonwealth Edison announced, on behalf of a nuclear power study group, its proposal to build a power reactor. General Electric would be the contractor, Bechtel the designer-constructor. The unofficial word is that the unit will be GE's new dual-cycle reactor with a rating of 180,000 kw. in the reactor proper. This would make it the biggest yet. It would be owned by Commonwealth Edison.

- SRI is doing a design, cost and feasibility study on a relatively low-cost (about \$3 million), high-power (about 10 megawatt), heavy-water test reactor comparable to Arco's \$10-million MTR. SRI envisions the reactor as a multi-industry venture similar to cooperative aeronautical wind tunnels.

- The Quartermaster Corps presented a summary of the first progress report on its \$5-million food sterilization study.

Atoms in a New Role

Almost before the first atom bomb hit the ground at Hiroshima, engineers started dreaming of the day when heat from such a blast could be harnessed to generate electricity. Now engineers at the Bureau of Mines are quietly exploring a different angle: they're trying to use the energy from an atomic reactor to supply process heat for synthesis gas and other reactions of the process industry.

Though present discussions are in the preliminary stage, engineers at the Bureau of Mines under Solid Fuels Chief Louis McCabe, as well as men from the Atomic Energy Commission, are guardedly optimistic about the idea. Basically what they propose is this:

AEC would design and build a reactor capable of producing temperatures in the 2000-3000 F range. Pulverized coal and steam would be injected into a pipe running through the reactor, take up heat from the reactor to form synthesis gas.

While detailed costs of such a project—already tentatively labeled the B-M Reactor—haven't been explored, the present economics of synthesis gas production make it look attractive. Here's why:

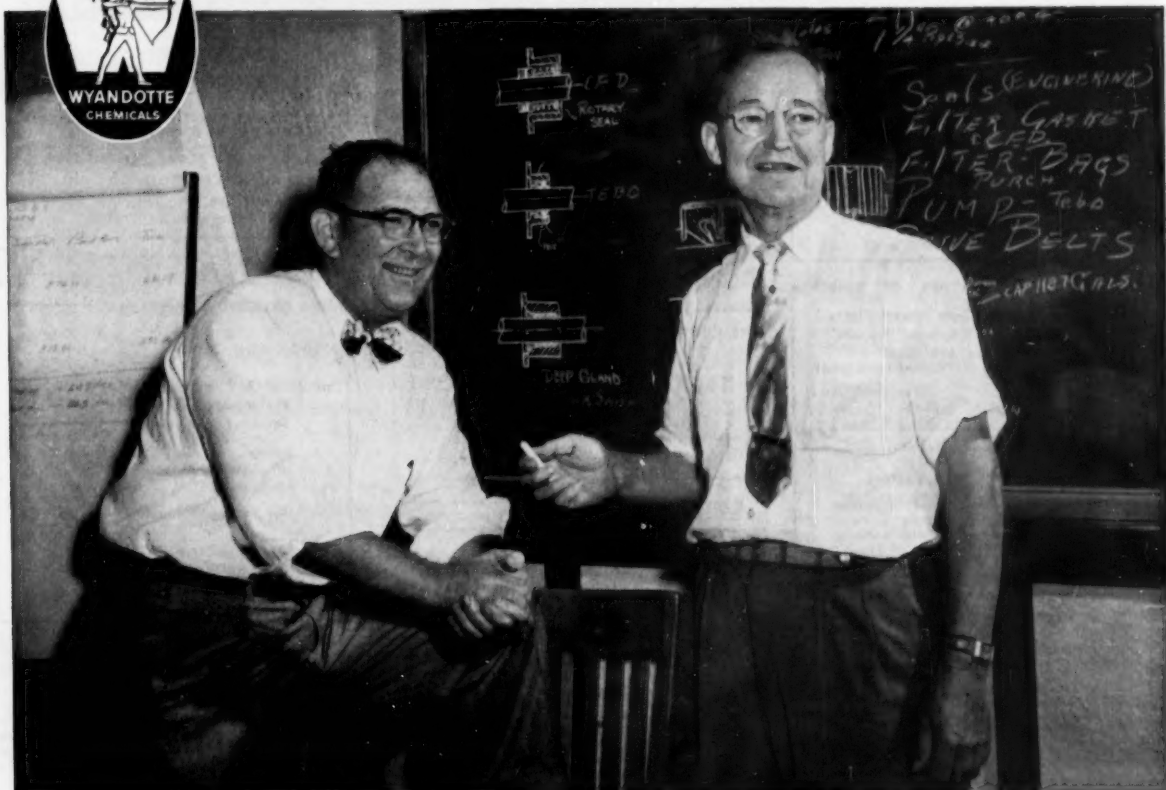
Cost of raw synthesis gas made by sending pulverized coal, steam and oxygen through a heated reaction vessel is 15-20¢/lb./1,000 cu. ft. About 7¢ of this goes for the tonnage oxygen used to burn a third of the coal, raising the temperature of the mix to a point high enough to give a good yield of synthesis gas. On top of that, add in the cost of the burned coal and you get a 9¢/1,000-cu.-ft. charge that could be avoided by an atomic reactor.

Kinetics of the synthesis gas production from coal, of course, depend on the type of coal used. In any case though, the process seldom gives good yields at temperatures below 1800 F, and usually increase as the temperature goes up. And although AEC probably doesn't have a reactor that operates in the 2000-3000 range, it did imply five years ago that a reactor to power an airplane would have to operate at approximately 2500 F.

Problems Aplenty: The difficulties in building the B-M Reactor, AEC engineers feel, would not be concerned so much with design as with finding the right materials of construction, for



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Dr. W. L. McCracken (left), director of research for the Detrex Corporation, works out a cleaning equipment problem with Vice President C. F. Dinley.

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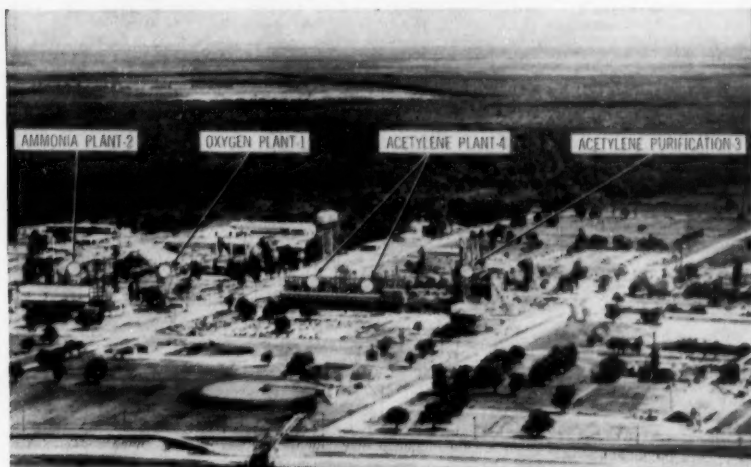
suitable materials must have not only good high-temperature stability and good heat transfer characteristics, but also good resistance to nuclear radiation.

A silicon carbide tube is presently thought to fill the bill. But although it passes many tests, it still must be examined for its ability to resist erosion from the pulverized coal, corrosion from the molten coal-slag particles and its permeability to gas. The permeability is an important consideration because engineers want to attempt the reactor through-pass under pressures approaching those at which the synthesis gas is used, thereby eliminating the need for a great interstage increase in pressures.

These and other questions will be answered, if present plans go through, at the bureau's Morgantown, W.Va., facilities. It's been speculated that

eventually the pattern that would be followed in a cooperative venture between the Interior Dept. and AEC would parallel those between AEC and other government agencies. That is, AEC assumes costs of prototype reactor development while the other agency pays for auxiliary equipment. This second agency would take over all responsibility for duplicate reactors. In the case of the B-M Reactor, Interior would allow private firms access to results for possible construction of their own reactors.

Admittedly there are staggering technological problems still to be solved. But they may be no larger than others faced in the atomic energy program. And they're successful solution might open the door to a whole series of high-temperature chemical reactions that up to now have been considered impractical.



FORTIER PLANT: Onstream analyzers shorten control loop.

Infrared for Full Control

After a rather happy experience with infrared automatic plant stream analyzers at Fortier, La., American Cyanamid revealed last week that it's planning to use computers to digest the information and reset process variables. It would thus "close the loop," attain a fully automatic plant.

One of the first takers of Perkin-Elmer's two infrared analyzers introduced two years ago (CW, March 7, '53, p. 61), Cyanamid lays claim to being the first to incorporate infrared instrumentation as an integral part of its basic process design. This move was

dictated by the highly critical processes Cyanamid elected to use in the most direct route to acrylonitrile from acetylene. The unique flame reaction process, by which natural gas is burned with oxygen to produce acetylene and hydrogen, requires fast accurate analysis that just can't be obtained from conventional temperature, pressure and flow measurements.

By analyzing process streams right at the point of control, infrared analyzers can lop hours off of ordinary sampling and laboratory analysis time. One pair of analyzers at each of the

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two groups of burners completes the sampling cycle for four burners in eight minutes, automatically records methane and acetylene concentrations on a chart in the control room. Other analyzers check: concentration of acetylene to compressors, carbon dioxide in off-gas (hydrogen) to ammonia plant, acetylene in air entering the oxygen plant.

Trace Detection: The versatility of infrared instruments is demonstrated by their ability to detect and measure trace amounts of contaminants in process streams. Several of the analyzers at the Fortier plant record concentrations below 20 ppm., and one is

being set up to accurately measure less than 1 ppm. Trace detection is particularly important in the ammonia plant where small amounts of oxygen-containing compounds would quickly poison the iron oxide catalyst if permitted to reach the reactor.

Closed Loop: Though infrared analyzers are still used only to indicate control settings, plans are in work to develop feedback computers that will complete the automatic control loop.

One of the complex problems still to be solved is how computer programming can be set up to handle variable economic factors occasioned by the somewhat unpredictable demands for

hydrogen or acetylene.

Bowing to operating personnel's inherent skepticism toward new gadgets, the computer will, at first, be used only to calculate manual settings. But once its reliability has been established and accepted by operators, the final feedback link will be forged to close the loop.

What part infrared instrumentation will play in Cyanamid's proposed expansion of methylstyrene and acrylamide-acrylic acid polymers remains to be seen. But this much is certain: it has proved its value as a process tool and will have first crack at the tough control jobs.

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